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THE HOME OF "CARYOTA URENS."

THE CEYLON JAGGERY PALM.

THERE is generally speaking, to the youthful mind a certain glamour surrounding the term Palm, primarily produced perhaps by tne frequent mention of the name in holy writ, and the representations of the tree in books and pamphlets written tor the young. As a child, the first book I had the patience to read from cover to cover was *Paul and Virginia*, and it was only very recently that I stumbled across a copy of the same book, and read it again with interest. The first reading gave birth to the longing to visit the tropics. This desire grew till I reached the state of manhood, when it was somewhat suddenly gratified, and I set sail in the year 1862 for India.

In those days Palms were not to be seen on "coster's" barrows, otherwise the desire to visit foreign climes for the sake of seeing their Palm-groves might have been somewhat damped. I had visited the Palm-house in the Edinburgh Botanical Gardens, and before embarking at Southampton 1 paid a hurried visit to Kew. What 1 saw at these two places only whetted my desire to persue my journey to the East.

Arrived at Malta, I had the satisfaction of seeing Palms growing, not under glass, but under the sunny sky. Alexandria came next with its cloud of windmills and clusters of Date palms. Then the journey from thence to Cairo revealed a country mostly under water, with the stems of the Date-palms in the numerous groves standing in the flood, and gratefully taking up the revivifying waters of the Nile, their plumes tossing and waving as it in delight. Bombay, with its limited number of cultivated Coconut Palms brought renewed pleasurable feelings ; but Calicut being my destination, I was totally unprepared for the glorious sight of cultivated Coco and other Palms which met my view as 1 coasted along the Malabar coast for several hundred miles in a native craft.

At first I was puzzled to know what the green belt reaching to the very sea consisted of. Our craft keeping well off shore, it was not till approaching the port of Calicut that I came to know that this broad evergreen band, reaching for so many hundred miles, was made up solely ot Palms, the Coconut predominating, of course, with an occasional patch of Areca and other species.

On landing late in the evening I was conducted to the honse of a frieud situated on rising ground, and commanding a full view of this wonderful Palm zone. I slept that night in an upstairs-room with a spacious balcony, used in these hot climes as a prominade in the mornings and evenings. At daybreak I was aroused from a refreshing sleep by a native servant, who brought me a welcome cup ot tea and slice of toast. Light was streaming in by the balcony windows. The sea-breeze had just begun to blow, and I could hear the distant murmur of the waves on the sea-shore, the plaintive screams from the flocks of kites as they flitted past, with heads bent downwards in search of their morning meal. These sounds were all that disturbed the silence of the morning air. As I stepped on to the balcony I shall never forget the sight that presented itself to my gaze. I looked down upon a veritable sea of Palms, gently weaving their

magnificent fronds in the light morning air. The house was surrounded by them, up to the very walls, and as far as the eye could reach nothing but Palms. Monotonous, you may say; yes, but very grand in its monotony! At that moment I thought of Edinburgh and Kew, and smiled. Mine host joined me on the balcony. I did not wish him good morning, but instead exclaimed, "That sight is worth a hundred voyages from Southampton to Malabar!"

It was difficult to imagine oneself in the midst of a thickly native-populated district, the scene having a certain wild appreance about its giving rise to the thought of the calm solitude of the jungle, and the absence of man. This illusion was quickly destroyed by a subsequent walk through the Palm-grove. Then were seen the innumerable native huts, with walls and roofs composed of the trunks and fronds of their loved Coconut Palm, nestling amongst the contorted stems of the growing Palms, and effectually protected from the burning heat of noonday by their glorious crowns of spreading fronds. This Palm, as it is cultivated in these climes, has no pretensions to the straight-stemmned dignity of the Areca, that "arrow-shot from heaven," the Palmyra Date, or Caryota; but the groves of stems appear in wanton entanglement, leaning in all directions, but always with the crowns turned heavenwards.

Occasionally, but not often, does the stem divide eight or ten feet from the ground, and produce two crowns of leaves. I do not think that this Palm is included in the list of sacred trees of the Hindus, but they seem to treat it with the same care and affection as if it were. Sometimes they will build their huts around the stem of a Coco-palm, thus giving the tree the appearance of having grown through the roof. So far as I can remember, it used to be calculated that each Palm-tree yielded, on an average, from nuts and "toddy" about two rupees (four shillings) per annum; so that an acre of Palms calculating 400 trees to the acre, would yield an annual income of £80, no small sum to a native proprietor.

After a week's stay at Calicut, amongst its Palm-groves, Mango, and Breadfruit-trees, I started for my final destination, viz., the Coffee-producing district of Wynaad in Malabar. To reach this I had to cross the Western-Ghaut chain by a pass in the mountains, and it was thus I first came in contact with tropical vegetation in one of its grandest phases.

Quitting the Bamboo forest at the foot of the mountains, and before reaching the mighty evergreen forest, a belt of sub-arborescent vegetation is encountered. In riding slowly through this I can well remember being struck with the extreme beauty of two plants, viz., Lagerstrœmia Flos-reginæ, and Cycas circinalis. These were growing in abundace, the first-named being prodigal in display of its superb rose-coloured racemes, and the latter growing in large groups among granite boulders, which it drapped with its beautitul fronds. Higher up the western Ghaut, forest proper commences, and continues till the crest of the ridge is reached, some 3,000 feet above sealevel.

The zig-zag road for a considerable way follows the track of a deep ravine, at the bottom of which one could hear the rushing of a mountain stream, but owing to the dense tropical foliage no water was visible. Before reaching the first thousand feet of elevation, an occasional group of tree-ferns was seen on the sides of the ravine, and thorny Calamus climbing its way to the branches of lofty trees, as if to free itself from the dense foliage beneath, and show to the world its crowns of graceful fronds. As a matter of fact, this was the first wild Palm I had ever seen, but it was—though passingly beautiful—opposed in appearance to the ideas in one's mind of the dignified and independent grace of a Palm-tree proper. Reaching the summit of the Ghaut it was but a short ride to the first Coffee plantation, where I rested for a day or two, and where I had my first experience of that warm hospitality so well known amongst Europeans in India. Strange that the manager of this plantation should prove to have been an English gardener, the late Mr. James Boosey, an excellent and successful planter, as well as estimable man.

In going the ronnd of the plantation in the cool of the evening with mine host, I had my first sight of the Caryota Palm in a wild state, which had even a greater interest for me at the time than the surrounding fields of Coffee shrubs, the cultivation of which I had come all the way from England to learn. I saw the noble Palm at its best, a little colony of trees of various heights the tallest bearing heavy masses of fruit, forming a strikingly beautiful appearance. The bipinnate leaves, with their ultimate divisions shaped like the fins and tail of a fish—together with the huge spadices of golden berries hanging from the brown trunks of the highest trees, give them a unique and elegant appearance. Nature, in one of her mysterious moods, has ordained that these wouderful drooping bundles of golden seeds shall be produced on the adult tree first at the top, and eventnally at the very foot of the trunk, when the plant dies. She has, however, made ample provision for the reproduction of this beautiful tree by the enormous quantity of seeds produced by each spadix, and the suckers which the tree throws up. This Palm would seem to shun the interior of the dark mountain forests of the western Ghauts, and it chiefly grows on their outer skirts where, so to speak, it obtains the better opportunity for the display of its graceful fronds, and enjoys that necessary light and air which are wanting amidst the gigantie forest vegetation. It is also curious and interesting to find that wherever a homestead is seen on the edges of these forest, and overlooking the rice-fields, the ryot, inaddition to such beautiful evergreen trees as the Mango, Orange, Jack, Roseapple, and others, is sure to have his garden furnished with a small colony of the Caryota Palm consisting of from six to eight trees from 70 to eighty feet, down to seedlings of some 2 to 4 feet in height. It is not quite clear whether the ryots have espected these sites for their habitations owing to existing groups of Palms, or have reared the trees from seeds or suckers, but the well-known love of the Hindoo for picturesque spots in or near which to locate his homestead, would justify the opinion that previously existing groups of the Caryota Palm has influenced his choice of a site for his homestead.

On the Nilgherry Mountains there exist a singular race of pastoral folk named Todas, few in number, illiterate, lazy, dirty, immoral, and degraded, and yet these people have admittedly selected the very loveliest and most picturesque spots on all those beautiful mountains for the building of their huts and villages.

That this Palm is known to require plenty of light and air for its development is shown by the fact that when small clearings are made in the forest of Malabar by the jungle tribes for

the purpose of cultivating Cardamons, Caryota urens is sure to make its appearance, together with the young seedling Cardamom plants, doubtless coming into existence from seeds which have lain under the thick coating of vegetable matter together with those of Cardamom, it may be for centuries, awaiting the advent of light and air to effect germination. It is perhaps worthy of mention that Cardamom cultivation in Southern India consists solely in first felling small patches in the great forests, and afterwards simply keeping the brushwood low by one or two yearly cuttings with the billhook, the Cardamom plants appearing in abundance and producing fruit in the course of three years without any other cultivation whatever, or artificical sowing of seed. Yet another proof, I think, may be found that the Caryota will not succeed in the too close proximity of other trees, in the fact that in the Bamboo or deciduous forests which stretch from the foot of the Western Ghauts to the confines of Mysore, occasional patches of evergreen forest occur containing trees exactly similar to those found in the parent forest but completely isolated, and frequently seperated by many miles of Bamboo Jungle. The soil, too, of these patches in every way resembles that of the western slopes, and is inlaid, as it were, into the black mould of the Bamboo belt. These isolated clusters of evergreen trees are inexpressibly cool and refreshing to the eye during the hot and dry months of the year, and when the surrounding Bamboo clumps and hardwood-trees are destitute of foliage.

The natives have instinctively fixed upon these beautiful spots for the location of an idol, partly surrounded and protected by a wall of rough stones, so that they are all tinged with the glamour of sanctity; and woebetide the person who dares, in any way, to profane these spots.

I can well remember during my noviciate in the Coffee districts, having, from sheer ignorance of how seriously I was offending, felled a tree on one of these sacred places for the sake of its timber, and being pounced upon by the custodian of the temple in the form of an elaborately dressed Hindoo lady, who first of all abashed and confounded me with a torrent of choice abuse in the Malayalum language, and then demanded the handing over to her, under threat of legal proceedings, of a certain number of rupees, which I was only too fain to do, and thus prevent further trouble. Needless to say, this was my first and last iconoclastic offence.

In each of these romantic spots, and in close proximity to the stone idol, is sure to be found a group or the lovely Caryota urens waving their graceful fronds and, as it were, watching and garding the natives as they come to worship. Amongst the stones, Ferns of various species have taken hold naturally, but giving the impression that they have been placed there by the hand of man.

This Palm, together with its congener, Caryota sobolifera, is used in England in subtropical gardening, but not to the extent that its graceful beauty would justify. I would dearly like to see a group of this Palm arranged on an English lawn similar to those I have so often stood and admired in the wilds of Malabar.—J LAWRIE.—*Gardeners' Chronicle*, April 2.

JAMAICA GINGER.

One of the most readable papers which we have seen for a long time is printed in the current issue of the *American Journal of Pharmacy*. It is entitled "In the Land of Ginger," and is written by Mr. F. B. Kilmer, who has resided in Jamaica for several years. It contains the most graphic account of ginger planting and harvesting which has been printed for many years, and from it we draw the following particulars. Between 25,000 and 50,000 of the Jamaica population depend for their living upon the ginger-crop. The ginger is of two kinds—"blue" and "yellow"—but the plants are botanically indistinguishable; the 'yellow" is the better root, being brittle, and more pungent than the "blue," which is tough and fibrous. These, again, are subdivided into "plant" and "ratoon" ginger—the former is ginger planted each season, and the latter is a return crop, secured by leaving a part of the rhizome in the ground at the harvest-time. Ginger is planted in March and April. Pieces of the rhizome, each with an "eye," are planted. Few planters have settled farms; they clear a piece of the forest, burn the weeds, and plough the soil a little, then do the planting. When once in the ground the plant appears to require little attention, except that it must be well watered, and as there is an abundant rainfall in jamaica no labour in this direction is required. Attempts are rarely made to fertilise the plant, manure being scarce in Jamica, as there are no stables. The most that is done is to plough in the weeds and cover the ground with banana waste. As an experiment, watering the beds with sea-water and sea-weeds has yielded good results; but the average planter is quite indifferent to scientific cultivation, and this is bad for him, because the soil is impoverished by a few ginger-crops and "dried-up streams, general barrenness—in fact, a wilderness—marks the progress of ginger-culture." The deep-black soil of the virgin forest is where the best quality is produced, and to grow ginger under this condition involves the destruction of large areas of woodlands by fire. This burning is considered of great importance, as potash and other mineral matters contained in the ashes are deposited to sweeten the ground, while the fire also destroys insect pests. In consequence of the many thousands of acres of land destroyed and abandoned in this manner in Jamaica, the local Agricultural Society has been at work since 1895 on worn-out land, and with the aid of suitable artificial manures have had very encouraging results in reclaiming the land. The Society is extending their operations by securing larger plots and giving aid to planters by furnishing manures, &c. The "ginger season," or harvest, is from March to January. When the stalk withers and the bloom has departed, the rhizomes are twisted out of the ground with a fork, and operation which takes long practice to become expert in. After the soil and fibrous roots have been removed, the root-stalk is thrown into water, when it is ready for the peeling-operation. "Peeling-matches," in which the planter gets all his friends to join, are a time of much merry-making in the sable community. The peeling is mostly done by experts with the aid of a simple knife. So far peeling-machinery has been a complete failure The operation is an all-important one, as may be seen from examination of a transverse section of ginger. First there is an outer striated skin, under which are numerous layers of thin-walled cork cells. The oil contained in these cells in fresh specimens is very pungent, exceedingly aromatic, and almost colourless. As this corky layer contains the greatest amount of oil and resin cells, the deeper the peeling is made so much more of these substances are carried away with the

epidermis. When peeled, the roots are thrown into water and washed; the purer the water the whiter is the product. Sometimes limejuice is used in the wash-water, which gives a whiter root, but as the lime-juice contains saccharine matter and pectose, it prevents drying, and mildew follows. After washing, the rhizomes are dried in the sun, and in from six to eight days they become thoroughly dry. At sunrise the ginger is put out upon a barbecue (platform of stone or concrete), turned over at mid-day, and taken in at sunset. The average loss of weight by drying is nearly 70 per cent. Experiments have been made with calcium chloride as a drying-agent, but the result was not equal to the native method, and the same may also be said of American fruit-evaporators, in which wood is used as the source of heat. It has been asserted that it is a common practice to bleach ginger with the fumes of chlorine or sulphurous acid, but Mr. Kilmer states that no instance of it is known in Jamaica, as the planters are unintelligent, and are opposed through prejudice to innovations. Mr. Kilmer tried chlorine gas as a bleaching-agent, but the product was of a dirty yellow colour. When the crop is fully dried it is carried, mostly by women, to the place of sale, which may be from five to fourty miles distant. Here it is sold by the "heap," not by measure or weight. A "heep" of ginger varies considerably, according to the law of supply and demand. If the "hands" are finely shaped and large, there are fewer in the heap; if small, dark, and snarly, the pile is made larger. Should the price of ginger in London or New York advance it is because the heaps in Jamica have been diminished, and should the price go down the heaps have become larger. The exporters of ginger assort the produce into four or five grades, the highest being the large-sized hands of light and uniform colour, the lowest being the ratoon finger sorts, which are small, soft, and lacking flavour. Some of the hands weigh as much as 8 oz. The amount of ginger exported from the island during the last ten years was as follows:—

	lbs.		lbs.
1887	1,121,827	1892	1,822,531
1888	1,141,877	1893	1,526,884
1889	1,002,653	1894	1,672,384
1890 ½ year	554,193	1895	1,736,460
1891	1,219,197	1896	1,960,609

Half of this goes to the United States. An average crop may be estimated at from 1,000 to 1,500 lbs. dried ginger per acre, and in some cases 2,000 lbs. As already mentioned, the Jamaica Agricultural Society is improving the methods of cultivation by fertilisation, and from information recently to hand it is predicted that the crop now about to be gathered will probably be a record one, partly due to an abundant rainfall. This will mean lower prices for the ginger-planter.—*The Chemist and Druggist.*

BEANS: A FEW PRACTICAL SUGGESTIONS FOR THEIR CULTIVATION AND UTILISATION.

The very mention of the word "Beans" makes the mouths of sea-fairing men (yankees in particular) water as they think of the delicious pork nestling in its steaming bed of 'baked beans,' a delicacy seldom dreamed of by shore-folk on the east of the huge Atlantic.

To the medical mind the word is associated with the recollection of several drugs, such as Calabar bean, St Ignatius bean, Malacca and Carthagena beans, and a number of other vegetables whose only resemblance to the true bean or *faba* was either the shape of the seed or the fact of the seed having been enclosed in a seed-pod and to which the affix *faba* (meaning to feed) had been erroneously fitted.

An attempt has also been made by some authorities to include Soja Hispida, Cajanus, Dholls, the flat varieties of peas and many of the lentil family under the generic name of beans; simply because they, like beans, have been called and dietetically spoken of as 'pulses' and pulses embrace an enormous group of farinaceous seeds such as peas, lentils, maize, dholls, beans etc., all of which contain a large proportion of nitrogenous matter for avail by the animal creation.

But such a classification is erroneous in the extreme; as these several plants *materially* differ not only in their constitution, life-history, and botannical standing, but also in the chemical composition of their seeds, as may be seen by the subjoined table which shows the percentage of the various constituents of the flour obtained by pulverising the mature dry seeds.

Kind of Pulse.	Nitrogenous matters.	Starchy matters.	Fat.	Mineral matters.	Water.
Kidney bean	26. 9	49. 9	2. 0	4.946	16. 0
French bean	27. 3	48.84	2. 0	5 212	13. 5
Broad bean	27.00	52. 6	1. 6	5. 08	12. 8
Soja Hispida	38.83	26.65	1.51	4. 14	10.25
Dolichos	23 27	59.38	2.20	3. 19	12.03
Masoor Dholl	25.15	59.85	1.26	1. 92	11.84
Lentils	25. 2	58. 4	2. 6	2. 3	11. 5
Pisum Satiuum	27.96	56.36	1.47	2. 48	11.79
Cajanus Indica	22.18	62.13	1.95	3. 11	10.63

One of the most prolific of the vegetable world and almost the most useful as a food stuff, but yet the most neglected in India, is the Bean of which there are more than four hundred varieties, *all* of which however belong to the natural order *Leguminosæ* of the class *Diadelphia* and the order *Decandria.*

USES

The leaves, legumes and seeds are freely used as delicacies in company with meat or rice, in the shape of boiled vegetables, greens and curries; but the dried seeds are not largely indulged in as human food nor do the Indians live on them exclusively for the simple season that the crops sown are not very extensive and the supply of the nearly matured or young beans is in no way equal to the market demand for them.

As a cattle food, the *Dolichos Ghotwal* is the only one of the bean tribes that is popular; but even then this popularity does not extend beyond the Madras Presidency and the Mysore, Coorg and Carnatic Districts; because of the caste prejudices of the people who adhere to whatever their forefathers did in the way of stock-raising and foddering cattle.

The flowers contain considerable amounts of saccharine and starchy matter which might be turned to advantage for the production of alcohol or ensilage; but they are allowed to go waste in most places. The *Todas*, however, a semi wild tribe occupying some of the forest-lands in the Nilgherris collect the flowers of the wild varieties, mix them with various herbs and berries, add sugar and water, and from this mixture, prepare a kind of mild *arrack* by fermentation

The leaves and stems which are rich in soluble salts make excellent fodder for cattle and might be stored up as such; but with the usual wastefulness

of the ryot they are thrown away or perchance left to rot on the fields for manuring purposes; a bad proceeding as the manure value they return to the soil could easily be added at very little expense—certainly not a fiftieth of the commercial loss sustained by the non-utilisation of these stems and leaves.

The *cholorophyll* from the green leaves and unripe legumes is pretty largely used to impart a fine green colour to sweetmeats and other toothsome delicacies, but it is not extracted to any commercial extent; and during this extraction of the coloring matter by the sweetmeat manufactures, a great deal of valuable matter in the shape of strach and sugar is lost.

Bean flour has frequently been used for the adulteration of wheaten flour, but the cheat can readily be dected by throwing a little of the suspected meal into boiling water when the peculiar smell of the bean flour is almost instantly appearant, if it has been used.

Any doubt, however, can be easily removed by the aid of the microscope; for while the meshes of bean cellulose are very much larger than those of the fourth coat of wheat, the starch, which belongs to (class II. to which also belomg the pea, dari and mazie) is quite distinct and is composed of oblong oval (rarely reniform) granules, averaging 0.00135 inch, long diameter, and in which concentric rings or layers are all but invisible and the hilum is stellate.

Alcohol is not recovered from beans in India, but on the continent of Europe a very brisk trade is done in this commodity which afterwards finds its way to India in the form of cheap spirits and very often as the menstruum of the so-called No. 1 Brandy and Whisky.

Starch:—Laboratory experiments prove that starch of an excellent quality may be recovered from beans in precisely the same mode as from wheat and other grains, but lack of energy and the extreme difficulty to secure capital for plant and necessary machinery combine to prevent this useful substance assuming commercial proportions, and in this way no encouragement is held out towards the cultivation of beans.

CULTIVATION.

Season for planting:—Indian or country beans should be sown at the beginning of the second week of May and so also many of the varities of Dolichos and ervum; but creeping or runner beans such as the broad bean and scarlet runner etc. should not be put down before July, while English and French beans, kidneys and the delicate sorts of Phaseolus and Vicia may be sown at any time duriyg October to December, yet far more healthy plants and luxuriant crops are obtained when the planting is done immediately after the cessation of the rains.

The reason why sowing should not be done within the rainy season is that as soon as a seed begins to sprout it depends for existence on the starch and gluten stored up in the cotyledons which under the influence of *sufficient* moisture are respectively converted into sugar and diastase and the latter helps the sap of the tender plant to dissolve, and utilise the starch; but under the influence of excessive moisture the farnia ezpanding too rapidly, germination is pushed forward *long* before its proper time and weak, unhealthy plants are the result or the continued action of the water on the seed may so thoroughly rot it as to utterly prevent germination.

Sowing, as it is done by the ryots, is a mistake because they cast the seeds on to the fields where the birds pick up a good quantity and a considerable number get destroyed by the action of the sun and air, while of the 60 or 70 per cent. that do find their way into the ground, about another 5 to 10 per cent are choked up by the time the plumules shoot out by having been cast too closely together; besides this too, little attention is paid to the condition of the soil or to the proper rotation of crops.

Soils not only sustain the plant in an erect position and afford it food but also are the medium of the various chemical actions necessary to the preparation of the proximate principles of which plants are built up.

No matter what part they are destined to play in the economy of nature or how diverse their appearance, structure and life-history, the whole of the vegetable world is composed of the same *organic* elements in varying proportions and from 2 to 9 per cent of *inorganic* matter of which the greater part consists of varying proporation of alumina, the alkalies, iron and silica in combination with carbon dioxide, chlorine, vitriol, and phosphoric acid.

Now as the organic matter is derived partly from the air and partly from the ground, while the *whole* of the inoganic substances are obtained *solely* from the earth, it stands to reason that the soil should bear a distinct relation to the substances composing the plant it is required to sustain, and any excess or deficiency of any necessary constituent must be compensated or regulated, if we wish to have successful crops and healthy fruitful plants.

Due allowance must also be made for the impovershing action that plants exert on the soil by abstracting from it various important constituents that they require for their own nutrition and development.

By studying the subjoined analysis of the common bean (*Phaseolus vulgaris*) and remembering that the constitution of various plants depends greatly on the materials on which they are constructed the reader will understand the loss the ground must suffer.

Phaseolus Vulgaris.	Roots.	Leaves and Stems.	Seed.
Organic matter	80.74	74.46	78.80
Water	14.21	19.28	16.09
Percentage of ash (*i.e.* minerals)	2.86	2.01	2.54
100 parts of such as will contain:—			
Carbonic acid	1.79	1.20	1.63
Chlorine	2.15	1.56	1.96
Iron sesquioxide	0.72	0.52	0.65
Lime	13.26	9.65	12 06
Magnesia	6.60	4.80	6.00
Phosphoric acid	37.11	26.99	33 74
Potash	40.39	29.38	36.72
Silica	1.67	1.22	1.52
Soda	1.58	1.25	1.44
Sulphuric acid	3.65	3.32	4.28

Or in other words every maund (*i.e.*, 80 lbs.) weight of bean-plants raised, denuded the ground of the quantity of material shewn in column A of the following table in which the figures under B represent the amount restored by the Indian system of burning such part of the stems &c., as they do not otherwise untilise and scattering the ashes over the ground. Column C gives the loss *still* sustained.

	A.	B.	C.
Carbonic acid	0.045	0 008	0.037
Chlorine	0.056	0.022	0.034
Iron sesquioxide	0.018	0.007	0.011
Lime	0.349	0 139	0.277
Magnesia	0.174	0.068	0.106
Organic Matter	60.840	24.920	35.920
Phosphoric acid	0.928	0.371	0.557
Potash	1 064	0.425	0.639
Silica	0.044	0.017	0.027
Sulphuric acid	0.112	0.044	0.078
Soda	0.042	0.016	0.026
Total in lb.	63.672	26.037	37.635

Suppose this was allowed to go on year after year and nothing were done to remedy the loss in some scientific mode, the most fertile ground would be rendered perfectly barren as may be seen by the

subjoined statement of the average composition of some of the Indian soils.

Source of soil :—	Ootacamund	Bangalore.	Calcutta. Town.	Calcutta. Suburbs.
Reference numbers.	1	2	3	4
Fine earthy and organic matter	92.82	85.42	62.16	84.26
Sand and silicates	4.95	13.62	37.64	15.43
Soluble saline matter	2.23	0.96	0 20	0.31
100 parts of this fine earthy and organic matter contained :—				
Alumina	5.97	5 32	8.87	5.01
Ammonia	0.14	0.09	0.06	trace.
Carbonic acid	4.62	3.92	0.12	2.21
Chlorine	2.01	1.99	0.11	0.23
Iron oxide	5.94	4.84	6.26	3.08
Lime	6.12	5.24	10.62	4.21
Magnesia	0.92	0.87	0.14	0.52
Manganese oxide	0.16	0.28	Nil.	Nil.
Organic matter	10.46	9.04	4.00	6.14
Phosphoric acid	0.68	0.45	Nil.	0.17
Potash	0.32	0.31	0.04	0.12
Silica	53.53	60.81	69.56	76.02
Soda	0.81	0.42	0.09	0.24
Sulphuric acid	0 24	0.21	trace	0.07
Water and loss	8.08	5.47	0 09	1.98

No. 1 is an exceedingly rich soil that would easily give three successive bean-crops without requiring to be manured. No. 2 is also a fertile soil needing however a little toning. No. 3 has too much lime and is deficient in soluble salts and organic matter while No. 4 which would be a capital soil for floriculture requires to be brought up to standard in its lime and the soluble alkalies before it can be successfully used for vegetables.

Here then comes the necessity for the reciprocity of labour between the cultivator and the chemist; for without the assistance of the latter is merely impossible for the former to judge with any degree of certainty as to what is really in excess or deficit, and in nine cases out of ten a heap of good money is thrown away in purchasing a manure that does not happen to be what was really needed.

Damp land being generally unproductive, efficient draining is necessary and is greatly helped by ploughing, but *after* the land *has* been drained there is nothing to equal deep-ploughing to bring new mineral manure to the surfase and in very many cases this alone works marvels with supposed fallow-land.

If, however, manuring is necessary, the farmer *must* consider the sort of crop he intends to sow and regulate the manure accordingly from :—

(1) *Animal* manures such as blood, muscle, bones, horn, hair, wool, stable droppings and farm ordure, pigeons, dung guano, urine, sewage and night soil; but though the last is the *most* valuable it is not approved of by the Indian cultivator.

(2) *Mineral* manares as marl, lime, shell-sand, gypsum, salt, kelp, sulphate of magnesia, glauber's, salts, chloride of potassium, nitres, gas liquors, mixtures of saline manures with each other or with animal manures, and a number of patents.

(3) *Vegetable* manures which may be applied green or dry. Among thes are sea-weeds. mill-siftings and sweepings, saw-dust, straw, husks, charcoal powder, tanner's waste, barks, &c.

Animal manures are the most energetic on account of the nitrogeon and ammoniacal salts they contain, and *green* vegetable matter yields a speedy supply of food to the growing plants, by under going rapid decay; but *dry* vegetable manures act more permanently on the ground and mineral manures, if applied with *special* reference to the constitution of the soil they are required to improve or renovate, tend to early harvests with a plentiful yield and *perfect* fruit and seeds.

But though the farmer has a large variety of materials to choose from, he is perfectly helpless and runs the risk not only of spoiling his land and damaging his crops but also losing a large amount of money by studying the false economy of 'dodging the Chemist' out of his Rs. 6 to 10 as. analytical fee, and spending R40 to R100 in buying the wrong sort of manure, to thus depreciate his crop by perhaps three or four thousand rupees.

There is a hugue volume of truth in the adage "Each to his own trade or profession; but no poaching on others' provinces" and if the cultivators would only combine to pay Rs. 6 per annum per capita, they could maintain a first class agricultural chemical laboratory that would save them from the loss of thousands of rupees on the purchase of useless *materials* and on futile experiments.

The following table gives the cost, composition and relative value for hundred-weight of the most reliable 'quick' manures, and they are available in very large quantities in India

Constitution of :—	Humus or Leaf mould.	Bones.	Sewage or *Poudrette.*	Triplica.
Alumina	1.94	1.33	0.98	2.58
Ammonia	2.29	2.67	7.37	6.24
Carbonic acid	7.42	4.95	6.08	5.48
Chlorine	1.21	0.22	6.84	0.54
Fluorine	0.07	0.48	nil	0.79
Iron Salts	1.98	1.19	2.44	10.07
Lime	6.27	25.17	0.95	20.68
Magnesia	0.59	1.04	0.59	1.51
Manganese	0.16	0.45	0.09	0.64
Organic matter	28.33	22.07	56.85	22.81
Other salts	22.49	0.34	1.32	1.09
Phosphoric acid	2.14	41.08	1.93	20.74
Potash	1.49	0.15	2.96	1.77
Siliceous matter	8.53	2.21	2.25	10.90
Soda	2.66	0.76	4.06	1.16
Sulphuric acid	0.96	0.64	6.62	2.92
Undetermined Solids	1.26	0.35	0.79	Nil
Water or moisture	42.28	8.50	9.98	1.14
Easily soluble and ready for immediate avail	28.79	22.91	25.22	27.09
Slowly dissolved and for permanent effect	12.46	73.80	74.99	80.85
Cost per cent. Rs.	1½	3½	9	6
Relative quantity wanted in cwt.	8	3¾	1½	1
Therefore *actual* costs on equal conditions Rs.	12	11⅝	12	6

Sowing:—Two methods are suggested (a) direct sowing by casting the prepared seed into furrows 2 to 3 inches deep and (b) transplanting after the plumule has grown to nearly two inches high and the cotyledon leaves have dropped off or are about to fall off; but while in the first case it is wisest to 'cast' through a cocoanut-shell or wooden ladle drilled with an inferior hole just large enough to let the seeds run through in a very thin stream, in the latter form the plants should not be placed closer than six inches apart.

Preparing the seed:—If a rough examination show the presence of weevils, a thin sheet of vapour of bisulphide of carbon passed through the seed-boxes will soon get rid of these pests; but the seed will have to be aired for at least three hours in a moderately warm place to drive off the sulphide vapours before submission to the next process which consists in throwing them into cisterns carrying water containing corrosive sublimate in the proportion of one grain to the gallon of water. Here they remain for 24 hours so as to give the good seeds germinating impetus and float off the unsound ones, as well as to protect them from mould and ground larvæ.

The seeds for direct planting are shovelled into the aprons of the 'sowers' for 'casting' while those intended for transplanting are transferred to nursery beds and lightly covered over with sand containing a small percentage of the soil in which they are to be afterwards placed. Here they are watered twice a day till the

cotyledons rise half-way out of the ground, when the watering should not exceed once daily (gradually decreased, after planting out, to once in two days). This watering should be done with a rose-tipped can, and where available a spray is preferable. A mild day should be chosen for the transplanting during which at least one inch of the stem should be buried with the roots and the earth lightly pressed in. Begin in the afternoon and work on till sun down, so as to give the young plants all night to recover from the shock, and if they sicken, (as they will do for the first three or four days), sprinkle them with water containing nearly 0·001 per cent. of nitre which is a wonderful pick-me-up. When the plants begin to flower, lessen the water-supply and altogether stop when the bean-pods mature.

When the plants of the running or climbing varieties are nearly five inches high, supply them with climbing fences made of any kind of slender twigs that may be cheapest obtainable in a dry condition; but on no account resort to bamboo fencing which is apt to become a breeding pen for innumerable destructive insects and is particularly liable to a funguous disease which is fatal to bean plants.

Regularly overhaul the bean beds for slugs and caterpillars, and if the roots are at all denuded, earth them, taking care not to wound the roots. If the immature (*i.e.* young) beans are required for table, go over the beds carefully and snip off (do not pull) those only whose legumes are at least three-fourths ready for seeding, and do not water the plants on that day.

Harvest is betokened by the leaves beginning to fall off and the legumes, losing their chlorophyll, becoming pale and dry rapidly; and if ungarnered they will burst and discharge their contents on the ground. This must be guarded against by sending men into the fields with large huckster baskets into which are thrown the plants as fast as they are rooted up.

Those plants whose pods are not fully matured are left standing for two, three or more days till they do mature, and a practised hand will lose very few beans during the process of 'jerking' (*i. e.* uprooting) the plant out of the ground.

Those beans that are required for a future sowing are allowed to "tree ripe," *i. e.* get thoroughly dry on the living plant before they are gathered.

Now remove the huckster panniers to a place where the floor is properly *laped* (plastered with cow-dung mixed with clay) and swept clean. On this empty the contents of the panniers till a heap of nearly two feet high is obtained. Then this heap is to be turned over four or five times for two days or more under a hot sun, so as to dry it and help to burst the pods. The thresh the bean seeds out with flails or by making cattle or men run to and fro over the heap and then winnow off the shreds of husk.

Storing:—The beans thus harvested may be packed in two maund (*i.e.* 160 lb.) sacks, which, until they are wanted for market, should be kept on some elevated and dry place to guard against the ravages of rats and protect them from getting damped and spoiled. Or they may be immediately bulked in iron tanks whose mouths should be sealed down to keep out weevils and other insects.

The seed-beans should be thoroughly dried and then placed in bottles or earthen jars, which after being *closely* stoppered and sealed ought to be stowed away (till sowing time) in a moderately warm but *dark* place.

The bean straw may be used as cattle fodder and the roots and harder portions of the stems should be thrown into a pit, covered over with about a foot of earth and daily moistened with water and stable fluids, so that, by the time next ploughing season comes round, they will have decomposed into an extremels valuable and highly fertilising top-dressing for the next crop, which should preferably be of oats or barley.

Pay particular attention to the nature of the soll and the *proper* rotation of crops, always remembering that the same kind of crop should not be raised on the same ground for two or more successive seasons,—no matter how rich the original soil—without fresh manuring.

ROGER S. CHEW, M.D., C.M., M.S.C.

LIBERIAN COFFEE AND INSECT PESTS.

H.E. THE GOVERNOR, WINDWARD ISLANDS, TO THE SECRETARY OF STATE FOR THE COLONIES.

GRENADA, 4th December, 1897.

Sir.—I have the honour to transmit an extract from a letter I received on the 25th ultimo from Mr. G. Whitfield Smith, of this Colony, on the subject of the injury done here to Liberian coffee by a scale insect, some of which, on diseased leaves, I enclose for examination and report. I am collecting specimens of this insect in all its stages for identification.

2. Heretofore Liberian coffee has been looked upon as proof against any blight or insect attack. In view of its wide culture in every part of the world, it would be indeed a sad awakening to find the contrary.

3. In 1875 some trees are Liberian coffee, in its home, Liberia were affected by the *Hemilei vastatrix.* The effect was similar to what is described by Mr. Whitfield Smith. As regards the trees here, no extensive injury was experienced, nor have I heard since of any loss from the like cause.

4. May I invite a reference on this important matter to the Director, Royal Gardens Kew.—I have, etc., ALFRED MOLONEY. Governer.

EXTRACT FROM A LETTER FROM MR. G. WHITFIELD SMITH TO THE GOVERNOR, DATED 24TH NOVEMBER, 1897

—"I also forwarded some diseased Liberian coffee leaves. As Your Excellency will observe, these are attacked by a scale insect. When I first noticed it, some months ago, it was very scattered and seem to do little harm, but of late it has spread rapidly, and now seriously affects the health of the trees. It occcurs on plants growing in the open as well as on those under shade and the trees attacked gradually lose their branches. Hitherto Liberian coffec has been considered proof against insect pests, and I thought Your Excellency would like to know of this, especially as there is a chance of the disease becoming a serious evil if it finds a suitable object of attack in the Liberian coffee."

DIRECTOR, ROYAL GARDENS, KEW, TO C. P. LUCAS, ESQ., COLONIAL OFFICE, LONDON.

Royal Gardens, Kew, 12th January, 1898.

Sir,—I have the honour to acknowledge the receipt of your letter of December 30th (2739/97) enclosing copy of a despatch from the Governor of the Windward Islands with specimens of diseased leaves of Liberian coffee. 2. On examination here it was found that these leaves exhibited no trace of "coffee-leaf disease" (*Hemileia vastatrix*) or of any other fungus. 3. I observe that in the 3rd paragraph of his despatch Sir Alfred Moloney makes the following statement;—"In 1875 some trees of Liberian coffee, in its home, Liberia, were affected by the *Hemileia vastatrix.* The effect was similar to what is described by Mr. Whitfield Smith," *i.e.*, apparently to that exhibited by the diseased leaves accompanying the despatch. 4. As the matter is of great importance I may say at once that the effect is not in the least similar. The Coffee-leaf disease is a fungus which speedily destroys the tissues of the leaf and causes it to fall prematurely. The Grenada Liberian coffee, on the other hand, as Mr. Whitfiled Smith correctly states, is "attacked by a scale insect." As a matter of fact, two distinct kinds have been detected:—(1) The circular scale, *Aspidiotus articulatus*, which is also found on the West Coast of Africa (Lagos); (2) the long narrow scale, chiefly on the ribs of the leaves, *Ischnaspia filiformis*, which is very common in the West Indies and is also found in England. 5. These scale insects, though no doubt injurious, are not to be compared for a moment as a source of danger to coffee cultivation to the coffee-leaf disease. You are aware that the progress and distribution throughout the world of this scourge to coffee cultivation has been watched by Kew with assiduous care. Originating about 1869 in Ceylon it spread to the Malayan Archipelago in 1876, to Fiji in 1879, to Mauritious in 1881, to Natal in 1881 ("Kew Bulletin," 1893

p. 362), and to German East Africa in 1894. But, as I stated in my letter of 16th December, 1896, it is not known to exist in the West Africa Colonies. Added to this, Liberian coffee is found to be only moderately affected by it. I cannot but think, therefore, that all probability is opposed to the correctness of Sir Alfred Moloney's statement that the disease existed in Liberia in 1875, as Eastern Africa was not affected till nearly ten years later. I should be glad to know on what precise evidence Sir Alfred Moloney bases it. If true, it seals the fate of coffee cultivation on the West Coast and seriously imperils that in the new world. 6. I enclose a memorandum of the most approved method of treatment for dealing with scale insects. 7. A honorarium of one guinea (£1 1s.) is due to Mr. W. F. Blandford (whose address is 48, Wimpole Street, W.) for his assistance in the matter.—I am, etc., W. T. THISELTON DYER.

MIXTURE FOR DESTROYING SCALE INSECTS.

Heat milk nearly to boiling point and mix with double the quantity of kerosene; stir briskly until a thick creamy liquid is obtained. Dilute with ten times the quantity of water. Spray or apply with a brush, keeping the mixture constantly stirred.

Sour milk is as efficient as fresh.

If milk cannot be obtained, or if the mixture is required in large quantity, a strong soap emulson may be used in its place.

COPY OF MINUTE BY THE DIRECTOR OF GARDENS, SINGAPORE.

Hon. Colonial Secretary.

The scale insect is by no means rare here on Liberian coffee. It is usually a sign of weakness of the plant from want of nourishment. Liberian coffee is liable to a great many kinds of insect and fungus pests.—H. N. R. —*Selangor Government Gazette.*

ANOTHER COFFEE PEST.

I am afraid from what I see and hear, that a good deal of harm has been done to our coffee in more districts than one in a new way. The underside of the leaf becomes of a reddish tinge, it spreads rapidly, and soon affects the whole vitality of the coffee bush. I have pointed out to many fellow-planters, that where you have this, you have invariably a very small greenish white, louse-like insect. It has been maintained by some, that the injury must be caused by a fungus, (it is certainly not the *Hemileia vastatrix,*) but I contend that the original damage is done by this insect. I have several times observed a rather larger, dark grey insect in the same leaves, and I was almost sure from the first, that these were thrips. They are a little different from any of which I have the description. But I am now satisfied that the little white lice are the larvæ of thrips, and that this particular thrips has acquired such a liking for our coffee, that planters will have to fight him seriously. He can be killed by soap solutions, say one pound to 7 or 8 gallons; but a better cure where tobacco is so cheap would be:

1 or 2 lbs. Tobacco.
1 lb. soft soap, or common soap.
20 gals. water.

The soap should be cut into shavings and boiled, or dissolved in boiling water. The tobacco boiled separately and strained.

Unfortunately the thrips prefer the underside of the leaves so that a syringe that would throw upwards in a fine spray is necessary. Better still, a spraying pump, such as is used in the American Orchards. This can be used to throw from the ground a fine mist-like spray that reaches practically every leaf. A brush might also be used to sprinkle these liquids.

I send you a slide with these thrips mounted for the microscope. A couple of big, roundish insects are only aphides, which do no mischief to coffee, as far as I know. A mature thrips is on one side—the hairy wings mark it off from the others, and a number of the larvæ are also shown. There seem very few mature thrips on the coffee at present.

I trust that this notice may induce correspondence on the subject.—JOHN W. MOIR.—*Central African Times.*

NITRATES IN THE SOIL.

As soil fertility is of so much importance to horticulturists, and as the productiveness of a soil is directly proportionate to the amount of nitrates which it contains, and the facilities or favourable conditions presented for the conversion of organic nitrogen into ammonia and nitrates, the subject of nitrification becomes one of intense interest to all cultivators of the soil.

Nitre or saltpetre is a compound of nitrogen, which represents the form of combination in which nitrogen must be in order that plants may use it as food. The organic nitrogen of the soil, called its inherent fertility, as well as that contained in such fertilising matters as stable or yard-manure, dried blood, fish scraps, rape-cake, vegetable and animal-refuse, &c., is not in a condition to serve as plant-food. To become available it must be converted first into ammonia and then into nitric acid.

All nitrates are formed in the soil through the agency of small microbes or living organisms called bacteria, which require certain conditions for their proper growth and development. These requirements may thus be briefly stated: air or oxygen, a due amount of moisture, a proper temperature, that ranging from 95° to 100° Fahr. being considered the best; phosphates and other ash ingredients of plants, a mild alkali, such as carbonate of lime (chalk); and organic matter (humus) containing nitrogen. Shade is favourable to soil nitrification. The germs themselves are in greater or less numbers in all cultivated soils, and in order for a soil to furnish the conditions necessary, as enumerated above, it must be loose and porous, so as to admit atmospheric air freely; it must be well drained, and have good capillary action, so that at all seasons it will, as nearly as possible, contain that amount of moisture about it which is present when ground digs well, as this is found to be the degree of moisture most desirable. The soil should have plenty of organic matter (humus) within it to furnish nitrogen, and favourably influence the supply of water. For this reason horticulturists find leaf-mould, pasture-turf soils, and peat soils so beneficial for plant-growing. Soils deficient in the nitric ferment germs or bacteria are barren, while those which furnish conditions favourable for nitrification, such as those enumerated above, are always fertile. The total quantity of nitrates formed in a fertile soil is considerable. Experiments have shown that they may range from 75 lb. per acre in an unmanured soil, to about 125 lb. per acre in a soil to which farmyard manure has recently been applied. But it may be well to note that the whole of this nitrogen is not available to our ordinary cultivated crops, for the reason that many of them only assimilate the spring or early summer nitrates, the principal growth and power of assimilation haivng ceased by the month of July. Vegetable crops, such as Cabbage, Beet, Onions, Turnips, Carrots, Parsnips, Celery, &c., may still get hold of summer nitrates, but the nitrates produced in late autumn and winter are of little use, in so far as this applies to outdoor plants. The spring nitrification of a soil alone is, as a rule, quite insufficient for the requirement of early-spring plants, hence the advisability of using some stimulating manure, if very early production of vegetables is desired.—J. J. WILLIS, Harpenden.—*Gardeners' Chronicle.*

WATERPROOFING CANVAS.—The following are to be recommended:—(1) Good boiled oil coloured with a little lampblack or yellow ochre applied to the canvas when damp, and allowed to dry in a cool draught. (2) 1 gal. of boiled linseed oil, ½ lb. of common yellow soap, 6 lb. of yellow ochre, and 3 oz. of terebine. Dissolve the soap, cut in shreds, in about 1 qu. of boiling water, add the other ingredients, and boil together. Stir well to get thoroughly mixed while hot, and allow to cool before applying. Give two or three coats. (3) Litharge in the proportion of 1 oz. to 1 gal. of linseed oil boiled together with some colouring pigment for twenty hours. (4) For purposes where cleanliness is no object, tarpaulin canvas dressed with Stockholm tar is waterproof and pliable, but always more or less sticky.—*Work*, for April.

PROGRESS IN PLANTING.

As some of the first fruits of the compilation for our Directory we present our readers below, with a summary of the area of land held and cultivated on behalf of the various Companies represented in the island by Messrs. Finlay, Muir & Co. The total includes the present season's clearings, and it will be observed that there are 15,792 acres of tea and 1,088 acres of cacao; besides 4,000 acres under the coconut palm (on five different plantations) and 400 acres under Para Rubber. The Companies cannot be said therefore to be keeping all their eggs in one basket or to be neglecting new as well as old products. The detailed figures are as follows:—

	Total acerage.	Cultivated acerage.	Tea acres.	Cacao acres.
East India and Ceylon Tea Co., Ld. ..	2,680	1,554	1,554	—
Amalgamated Tea Estates Co., Ld. ..	2,610	1,532	1,338	194
Associated Tea Estates of Ceylon, Ld. ..	2,789	1,979	1,979	—
Kanan Devan Hills Produce Co., Ld. ..	1,140	840	840	—
Hopewell Tea Co., Ld...	8,172	3,730	3,730	—
Mahawala Tea Estate Co., Ld. ..	1,042	622	622	—
Consolidated Tea and Lands, Co., Ld. ..	11,066	6,623	5,729	894
Total ..	29,499	16,830	15,792	1,088

Rubber (*Para*)	..	400
Coconuts	..	4,000
Cacao	..	1,088
Total in Cultivation:—Acres:		21,280

MUSINGS ON THE HILLS: TEA IN HIGH DISTRICTS.

(*By Masmos.*)

I never visit Nuwara Eliya without regretting that the cultivation of tea should have invaded the Plain. After an almost endless vista of tea all the journey up, one might have been spared the view from most places in the Sanitarium of long lines of green bushes or brown stretches of cleared land. From the top of Pedrotalagala or from Kikilimane, one is scarcely conscious of tea cultivation, because the sense of undisturbed nature becomes so keen; but from 'One Tree Hill,' now called 'Single Tree Hill,' it is very different. Alas that the walk up this should now be entirely through tea, the old jungle walk on the top having been cleared. It is a great pity that any of the charms of Nuwara Eliya should go in this way. How delighted one is when one gets a view of nothing but virgin forest and patana! Then it is

"Nature all, and all delight."

It is a pity, too, that every approach to Nuwara Eliya—from Ramboda, from Kandapola, from Badulla, from Nanuoya—right up to the Plain should suffer from this monotonous intrusion of the commercial idea. The Colombo merchant and the planter are alike robbed of some of the benefits of a holiday, if it is taken here, by constant temptation to talk "shop," and by reminders and suggestions of the work-a-day world they are supposed to have left behind. And even those in other walks of life would be all the better for not being disturbed by anything but

"A Presence that disturbs—with the joy
Of elevated thoughts,

I have been reminded, by certain pathetic bits of abandoned land, here and there, of a passage in the writings of Jean Ingelow:—

"Nature, before it has been touched by man, is almost always beautiful, strong and cheerful in man's eyes; but nature, when he has once given it his culture—and then forsaken it,—has usually an air of sorrow and helplessness. He has made it live the more by laying his hand upon it, and touching it with his life. It has come to relish his humanity, and it is so flavoured with his thoughts, and ordered and permeated by his spirit, that if the stimulus of his presence is withdrawn, it cannot for a long time do without him and live for itself as fully and as well as it did before."

A tea estate is not idyllic or poetic, and besides its monotony it has a 'relish' and a 'flavour' of man's life of want and work; but it has a very cheerful look compared with abandoned land, and it is a cause of thankfulness, for æsthetic as well as for commercial reasons, that so much old coffee land has been put into cultivation.* How cheerful the country looks, and how well-ordered and prosperous its life; how the "air of sorrow and helplessness" has left it since tea began its reign amongst the hills. There is a bit of abandoned land just outside Nuwara Eliya that is an almost perfect illustration of Jean Ingelow's thought. It gives back sadness to him who looks at it. Its beauty; blasted appearance suggests that the vegetable world too must have its pessimists. Some distance farther on, the optimism of nature reigns for a long glance down the ravine ends on a glorious bank of forest foliage, variegated to perfection. This morning on looking down I was reminded of Dean Farrar's saying: "Valleys are the aisles in the magnificent temple of God." And so worshipping I went on my way.

In spite of such drawbacks as I have mentioned Nuwara Eliya is a grand place in which to spend a holiday. It will be better still when

CERTAIN IMPROVEMENTS

now much talked of by residents, because much is the increase of taxation, have been effected. There are splendid roads and many of them, and it is no spirit of unthankfulness that makes one wish for an Upper Circular Road at the Ramboda end of the Plain, so that old people and invalids might from the heights enjoy a sight of the place as a whole. How visitors to Kandy enjoy the view from the roads on the hills almost engirdling the town, and what glorious prospects would open out in a drive round this place if at an elevation sufficient to take in its beauties. Those

* We had just decided to find fault with "Masmos" for his apparent unthankfulness to tea—which saved Ceylon from comparative "ruin"—when we came on this saving passage. He forgets too the "delicious flavour" of Nuwara Eliya tea above all other teas in the island, as the market shows; and amidst some occasion for grumbling, "Masmos" ought to be specially thankful that tea has not yet invaded the grand and wild expanse of Horton Plains (which ought always to be visited by Nuwara Eliya season residents); while he must also not overlook the really attractive picture presented by the dark green of a matured tea field in or about Nuwara Eliya, in contrast with the varied forest, the whole being framed by the everlasting hills. Most thankful above all ought such lovers of the beauties of nature as "Masmos" to be, for the official rule that nowhere can Crown forest above 5,000 feet be sold for purposes of clearing or cultivation.—ED. *T.A.*

who have climbed Single Tree Hill and Kikilimane and Pedro (the last I have climbed a dozen times) know how real and varied these are.

And yet another suggestion. At apparently but little cost, two or three romantic walks might be made. There are plenty of young people in Nuwara Eliya in the season to enjoy them, and it is true also to say that here the old feel young. I walked the other evening into the heart of Pedro on the left bank of the stream, the right bank as you ascend, as far as the reservoir; if there had been a walk back on the other side of the stream it would have been perfect. It would not cost very much to make one, probably; especially as the path up Pedro skirts the stream for a good distance. Another pleasant walk would be (but this would somewhat disturb the privacy of the Government Agent's house) a clear path from near the gaol along the hillside to the back of the hospital. Indeed there is a path there already, and by the side of part of it the water supply for Mr. Burrows' house runs. This path might be thrown open with safety when water is laid on to the bungalow. At one point, and about half way, is a waterfall, well worth seeing, and known to a dozen visitors for many years past as the "Gentleman's Waterfall." And the grandest walk of all would be one up a ravine, known to but a few in its entire length, between the Lady's Waterfall and the Bund of the Lake. It is a grand walk, or rather scramble-ramble and climb, even now for gentlemen certainly, and for ladies who are young and strong and when there is not too much water. I know ladies who have done it—with assistance. At one point there has been an earth-slip, by no means recent, and the stream goes underground for a considerable distance. The old bed is covered with ferns and mosses and lichens and flowers. Towards the top and just before the bund is reached the stream runs rather deep and there are no friendly stones to help one along; but bare feet and a little more can easily accomplish it and then one of the most satisfying outings of the Sanitarium has been taken. It might be more difficult than it looks to cut a path on one side of this stream, but if it could be done a most lovely walk it would be. I suppose, however, that Improvement Commissioners do not exist primarily to satisfy the romantic and the nature-loving, and that a Water Supply, Conservancy, Drains &c. must receive the chief attention for some time to come.

[A picnic below the Lady's Waterfall and a scramble afterwards up the course of the stream to the Bund or Lady Horton's Walk used to be part of every season's programme some years ago.—ED. *T.A.*]

THE RUSSIANS IN MANCHURIA, AND THE OVERLAND TRADE IN TEA.

As regards the OVERLAND TRADE IN TEA BETWEEN CHINA AND RUSSIA, some useful information is afforded by this latest traveller in Manchuria. Mr. Christie in his Report told us that the Russians make a distinction in levying duty on imported tea, the rate on the product brought "overland" being only 1s 2d per lb. against 1s 10½d levied on all tea introduced by sea, or through other European States. Now we cannot suppose that the wish or policy of the Russian Government can really be to choke off the sea-borne traffic; for, such traffic is mostly conveyed in "Russian Volunteer vessels" and it must surely be the wish of the Czar as of the Kaisar to encourage the development of a mercantile marine. Nevertheless we may be sure that the success of the great railway line from Manchuria to Europe will be very dear to Russian statesmen and the following extract from the London *Times*' Correspondence, indicates how great is the improvement in cost of freight which we must be prepared for when the railway is finished:—

The head of navigation on the Shilka is Stretensk, a town of Jews. It will be the terminus of the Trans-Siberian Railway, and will displace Kiakhta as the centre of the overland tea trade between China and Siberia. The cumbrous transport by camel will be abolished and an important change in commercial trade routes effected. This assumption is based upon the fact that by the Stretensk route after the railway to Irkutsk has been finished, the freight on tea will be reduced one-half. For example:—the freight charges on tea carried from Hankow to Tien-tsin and thence by the overland route through Kalgan and Kiakhta to Irkutsk are, assuming that five camels carry one ton, £20 10s the ton. The same tea sent from Hankow by steamer to Nikolaievsk, by river steamer to Stretensk, and then by train to Irkutsk will pay, assuming that on. the railway freight is one penny per ton a mile, £8 a ton.

But Irkutsk is not Europe and the carriage thence added to the £8 a ton specified, should make the total far above anything involved in sea-freight from China, Calcutta or Colombo to Odessa, and therefore if the Russian Government would only deal fairly by imposing a uniform tariff on all tea entering the Empire, the seaborne trade should certainly carry the day. Perhaps the differential duty is regarded as a slight encouragement to maintain this overland tea trade in the face of the necessarily, very heavy transport charges.

CINNAMON SALES IN LONDON.

The particulars which have come to hand by mail of the Quarterly Cinnamon Sales held in London on the 28th February, fully confirm the advices which were received by wire, and even put a brighter complexion on the position of our spice in the London market. The quantity offered—1,956 Bales—was about 1,110 Bales short of the offerings at the previous sales in November; but February's auctions are always light. Last year the catalogue showed only 1,248 bales, and in February, 1896, the quantity offered was 1,792; so that the first sale for the current year brought to the hammer a decidedly high average quantity. What is more gratifying, especially after the depths to which Cinnamon had sunk, and in which in had remained for years is that this comparatively large offering did not lead to a fall in price. On the contrary there was a brisk demand, and prices indicate an advance, nearly all along the line. The only spice which showed a slight decline was of low coarse sorts which, we fear, is being sent off in increasing qualities from small native gardens, and too often without any care in preparation. We fancy we must go back to the 'Seventies" for the prices which Firsts of superior spice fetched —and indeed all four qualities of the better brands—for they ranged from 1s 3d for Fourths, to 1s 11d for Firsts. The advance may probably be explained by the small offerings of superior bark; but fair and medium kinds too shared in an advance of 1d to 2d per lb. over November prices. Comparing the prices which ruled last February with those which obtained

in February, 1897, the improvement is most marked. Thus, dealing with "good and fine" sorts, we make out the prices to compare as under:—

	Firsts.	Seconds.	Thirds.	Fourths
	s s d	d s d	d s d	d s d
1897 ..	1 to 1 6	11½ to 1 5	10½ to 1 4	10 to 1 1
1898 ..	1 to 1 11	10½ to 1 8	9 to 1 6	8 to 1 3

The above prices suggest carelessness in the preparation of fair and medium bark, the minimum prices comparing unfavourably with those for last year. It cannot be that the demand was slack for other than the best brands; for "unworked" spice—that is quilled Cinnamon which is not re-sorted and made up again in the London warehouses—also registered an advance on last year's prices. Curiously enough, in chips there was a falling off—the prices having ranged from 2¾d to 3½d, against 3½d at the corresponding sales last year.

Altogether, the outlook for Cinnamon seems more hopeful just now than for any other of our staple exports, seeing that prices have advanced or been maintained for four or five years, in the face of increasing exports; but, being a luxury and not an article of diet, there is a limit to the demand, as growers found to their cost during the fifteen to twenty years before the recent improvement in price. Two cautions are necessary:—(1), the avoidance of large extensions; and (2) care in preparation. One safeguard against reckless extensions is to be found in the fact that the preparation of Cinnamon is a caste industry; and that the maintenance of gangs of good peelers is one of the severest trials of planting life. But few Europeans are likely to rush into Cinnamon in any case. The following is the Report of a leading London firm in the trade on the last sales:—

London, 1st March, 1898.

Cinnamon.—The first periodical auctions of the year were held yesterday, when 1,956 bales Ceylon were offered, against 3,090 bales at the November sales, and 1,248 bales in February 1897. There was a full attendance of buyers, and a good demand prevailed, resulting in about 1,500 bales being sold under the hammer at generally improved prices. The greater part of the offering consisted of "unworked" quill with a very large proportion of low coarse cinnamon, while well-known brands of good and fine "worked" plantation spice were in smaller supply than usual.

"Good and Fine" sorts met spirited competition and all sold at an average advance on last November sales' rates of 1d to 2d per lb., while the medium and ordinary kinds mostly realised ½d to 1d per lb. better, except low coarse sorts which frequently ruled cheaper.

"Worked" quill sold, firsts, fair to superior 1s to 1s 11d, seconds, fair to superior 10½d to 1s 8d, thirds medium to superior 9d to 1s 6d, and fourths ordinary to fine 8d to 1s 3d per lb.

"Unworked" (as landed) brought 9d to 1s 2d per lb. for ordinary to good firsts, 7½d to 1s for low to good seconds, 7d to 10½d for low woody to good thirds, and 6d to 8½d per lb. for low to good medium fourths.

Chips, &c.—Of about 820 bags offered, 400 bags sold at prices ranging from 2¾d to 3½d per lb. according to quality. Quillings and pieces brought from 6½d to 11½d per lb.

Stock of Ceylon—4,193 bales, against 1897, 2,790; 1896, 4,727; and 1895, 3,371 bales.

The next auctions are fixed for 6th June.

Forbes, Forbes & Co., Limited.

THE HORTICULTURAL SHOW IN COLOMBO: POULTRY (AS WELL AS FLOWERS AND FRUIT) TO BE INCLUDED.

The upcountry lady correspondent who suggested the addition of Poultry to the Flowers and Fruit originally proposed for this Show, will —along with many more interested—be very glad to learn that "Poultry" have been included in the draft catalogue. So we are informed by the Honorary Secretary, Mr. C. Drieberg, Principal of the Agricultural School. We have no doubt that a full and varied show of poultry will be offered in June, and we trust altogether that the Exhibition will be a success, and the occasion for much innocent recreation, emulation and instruction.

NOTES FROM NORTH-WEST PROVINCE:—COCONUTS.

Marawila, March 30.

Caterpillars.—We, on the Western and North Western sides of the island, do not suffer so much from caterpillar as the good people of Batticaloa, as witness Mr. Green's report. Occasional and partial visitations are not unknown. It will be remembered that some years ago the trees round the Slave Island station were badly affected and I have seen patches of trees affected in this district, but not to such an extent as to cause alarm. The lower leaves alone were affected, while those in the top, which principally perform the important functions of assimilation, were intact. I have never seen or heard of nursery plants or nuts being affected. The suggestion to cut down and burn the affected branches is a very good one, as most of the caterpillars will be burnt before they have been transformed into the active and mischievous moth. I do not think that smoke however dense, even when impregnated with sulphur, will do any good in the open, as the caterpillar is safely entrenched within a kind of cocoon where smoke cannot reach him. Fires at night will do good for the reason which is well-known that they attract moths to their destruction. Little fires at intervals should be very beneficial.

KANGRA TEA PLANTERS AND RAILWAYS AND ROADS.

The Kangra Tea Association has reserved its greatest bid for fortune for another, and it is to be hoped a favourable opportunity. It wants two things both of an imperial nature, and it will not be happy till it gets them. It is anxious to represent them to the Vicery on the 5th April. One is a railway from Pathankot to Palampur. At present it costs us fourteen annas a maund to send our tea from Palampur to Pathankot, a distance of 71 miles, while from Pathankot to Karachi, a distance of 918 miles, only costs R1-9-9. There is a horrible tax on the industry, absorbing at least fifteen *per cent* of its meagre profits. Nay more, a tax on the entire trade of Kangra, Kulu and Mandi. For a cart road between Palampur and Byjnath—only a skip of ten miles—would join the existing Mandi Cart Road to the former place, and enable the produce of a vast extent of fertile country to be transported to Palampur on wheels instead of on the backs of oxen or the heads of coolies, and therefrom poured out

(let us hope) by railway into the plains. What an opening! The minerals, scrials and wool and fruit of Kulu: the salt, timber and grain of Mandi, the wild mountain fibres (many of them valuable if, only transit were cheaper) the tea, the rice, the timber, the charcoal, the slates and the cut stone for building of the Kangra Valley. Not to mention the snow, frozen as solid as ice and a perfect substitute. You can land a maund of snow at Palampur any time in the middle of the hot weather for three annas; given a railway and you shall deliver it at Lahore for six or eight waste exeluded. It constituted a brisk trade in the days of Akbar when the snow of the Kangra Hills sold in the bazaar of Lahore for a rupee per seer. Does modern Lahore long less for this luxury then the Lahore of 333 years ago? Are the educated peasantry of the parched plains unable to appreciate it? Would Amritsar fall to use? I have seen a stalwart Jat agriculturalist drink a bottle of iced *belatc pani* at a railway station on May, and nothing will induce me to believe he did not like it.

The second thing the Kangra Tea Association wants is the Nushki-Seistan route to Mashed made clear and safe. To assure this, British Consular Agents at Nasirabad and Seistan are needful to counteract the influence of the Russian agents at those places. The Government of India spends crores of rupees in making ready to fight Russia on our frontiers. To what end? To preserve our possessions and our trade. Shall it not spare a few thousands to compete with Russia in the commercial arena of Central Asia? The new trade route requires developing. It carries us straight to Central Asia. All it wants is British Consular protection to guide it to success.—*Pioneer.*

PARA AND AMAZONIAN RUBBER.

It is stated in a Foreign Office report from Her Majesty's Consul at Para that the total amount of Amazonian rubber exported from Para, Manaos, Bolivia, and Peru during the twelve months ended June 30, 1897, was 22,216 tons, of which 12,368 tons were sent to Europe, and 9,848 to the United States. The Amazonian crop during the same period amounted to 22,315 tons, of which 9,100 tons belonged to the State of Para. The amount of Amazonian rubber exported during the year ended Dec. 31, 1896, was 21,597 tons, of which 12,542 tons were sent to Europe (10,637 to the United Kingdom, and 1,905 to France) and 9,055 to the United States; while the amount of Amazonian rubber exported in 1897 (Jan. 1 to Dec. 15) was 20,554 tons, of which only 9,726 tons went to Europe, and 10,828 tons to the United States.

The value of the rubber exports from Para during the year 1896-97 was £1,977,596, and the duties collected on this value amounted to £415,295.

All the trade between States watered by the Amazon (*i.e.*, Para, Amazonas, Peru, and Bolivia) and the United States is transported in British bottoms; and all the rubber purchased by the United States is paid for through British banks, of which there are three established in Para. A British company—the Amazon steam Navigation Company of London—possess 35 steamers for the navigation of the river Amazon. Over 100 river steamers belong to Para. Most of them were made in England, and merchants in Para, Manaos, and Iquitos are continually purchasing others from the same source. Purchases have been made also in the United States, France, and Germany, but the British article is found to be superior.

Rubber of the best quality is produced throughout the continent watered by the Amazon between Para and the Andes mountains of Peru, and the majority of authorities on the subject are of opinion that there is absolutely no fear for the exhaustion of the supply of rubber in the Amazonian States. Distance and rapids are not insurmountable obstacles, for in some cases this produce is transported as much as 6,000 miles before it reaches Para; and, when rapids impede the way, canoes and their cargoes are hoisted out of the water and rolled along the banks, sometimes for several miles, until navigable water is reached. This causes much delay and additional expense, but it is found in the end that distance and prolonged transportation have improved the rubber, so that when it arrives at its destination it sells for higher prices than that collected nearer the mouth of the river.—*Journal of the Society of Arts.*

COFFEE PLANTING IN THE STRAITS.

Mr. E. V. Carey, formerly well-known in upcountry, at one time superintendent of Amherst, Udapussellawa, and now in charge of several estates in Selangor, passed through Colombo on Thursday. In the course of a brief conversation with the representative of a contemporary, Mr. Carey gave one or two interesting particulars of the progress of planting in the Straits. He appears to be full of faith in the future of planting there, though the low price now ruling for coffee has, of course, been a great blow to the Liberian coffee industry in that part of the world. Mr. Carey thinks that considerable improvement is capable of being effected in the curing of Liberian, so that it shall occupy a better place in the market relatively to other coffees than it has hitherto done.

"What makes our bean so unpopular with buyers in great measure is the adherence of the silver skin to the bean," said Mr. Carey. "Many of us think this can be overcome by subjecting the parchment to a high temperature artificially, thereby contracting the bean itself before the silver skin has time to adhere to it. Experiments made in this way have shown that the silver skin is so much disliked comes off quite clean, and leaves the bean itself with a grand colour visible."

KILLING OUT THE JUNGLE!

It is to be noticed that planters in the Straits are turning their attention to rubber, and Mr. Carey made several enquiries as to the progress of the cultivation in Ceylon. He told us that the latest suggestion made to them in the Straits was to cut out lines through the jungle about 40 yards apart, and, making a heap of rubbish and top soil at convenient distances, to place a plant of *fiscus elastica* on top. In six months' time the jungle growth round the plants would require cutting back, and a few supplies would have to be put in. This would have to be repeated two or three times at intervals of six months or so till the plants were well established, and in a few years the trees would kill out the remaining jungle! *Fiscus elastica* is not the most valuable of rubber trees; but, if this description of its hardihood be not exaggerated—and we fancy it is—there would appear to be a grand future before it.

OUTLOOK IN THE TEA MARKET.

GENERAL REVIEW OF THE DECLINE OF CHINA TEA AND THE ADVANCE OF INDIAN AND CEYLON.

A London authority on tea, writes:—"I enclose an article from the *Financial News* of the 22nd inst. on 'The Outlook in the Tea Market' which will doubtless interest you":—

Beyond a general idea that the teas of India and Ceylon have for some years past been gradually displacing China teas in the home market, the British public does not appear to have much knowledge of the facts connected with the wonderful development of the tea-planting industry in our Eastern dependencies, or of the size and importance to which that industry has attained. People have been satisfied that when the "resources of civilisation" were

brought to bear in the carrying on of an industry that had hitherto been entirely in the hands of a semi-barbarous population, which obstinately adhered to the most antiquated methods of cultivation and production, the usual results had ensued. Modern skill and science, as applied by British capital and enterprise to the cultivation of the tea plant in India and Ceylon, produced a better article at a lower cost than the old fashioned methods of the Chinese produced, and the weaker industry went to the wall.

At the present time China teas are practically driven out of the English market. When it is considered in how short a time, comparatively, this has been accomplished, this achievement can only be described as remarkable. It is within the experience of only middle-aged persons of the present generation that China teas were absolutely the only teas that could be bought in the English market. Indeed, it was only so recently as 1862 or 1863 that there was any effective competition on the part of Indian tea-growers with China, and for ten or twelve years after that date the consumption of China teas in this country still continued to increase. It was not until Ceylon joined its forces with India as a tea-producer that an effective inroad began to be made upon the Chinese monopoly. From that time, however, the process of displacing China tea in the English market has been very rapid, as will be seen from the following table, which we have taken from returns published by one of the leading authorities on this subject, Messrs. Gow Wilson and Stanton :—

Quantity of Tea on which duty was paid at all bouded Warehouses in the Kingdom during the years named :—

	Indian. lb.	p.c.	Ceylon. lb.	p.c.	China, &c. lb.	p.c.	Total.
1883 -	58,000,000	33	1,000,000	1	111,780,000	66	176,780,000
1886 -	68,420,000	38	6,245,000	3	104,226,000	59	178,891,000
1889 -	96,000,000	52	28,500,000	15	61,100,000	33	185,600,000
1892 -	109,528,000	53	63,102,000	30	34,483,000	17	207,113,000
1895 -	116,343,000	53	74,024,000	33	31,333,000	14	221,800,000
1897 -	124,534,000	54	85,493,000	37	21,372,000	9	231,40[illegible],090

Even these figures, however, do not give a complete idea of the effectiveness of the rivalry of British-grown teas, or of the real increase of tea consumption in these islands. For several years after the introduction of the teas of India and Ceylon into the English market it was noticed that, although tea-drinking was on the increase, the actual amount of tea imported advanced by very slow degrees. This was clearly shown by the Customs House returns, which showed that the tea duty was almost stationary for four or five years. This led to an inquiry by some of the high officials at the Customs House, with the result that a report was presented which contained the following remark :—" From the information which has been afforded us on the subject, we believe that we make a moderate estimate in assuming that Indian tea goes half as far again as Chinese tea, so far as depth of colour and fulness (not delicacy) of flavour are concerned. Thus, if 1 lb. of Chinese tea produce 5 gallons of tea of a certain depth of colour and fulness of flavour, 1 lb. of Indian tea will produce 7½ gallons of a similar beverage." It is clear from this statement—the accuracy of which can be confirmed by any tea-drinker who has taken the trouble to observe and compare—that the present consumption of some 210,000,000 lb. per annum represents a far greater actual increase in the tea-drinking of the country than the figures themselves would seem to show.

There is no doubt, at any rate, about the completeness of the triumph of British-grown over Chinese teas in the home market, and this is, of course, a matter of satisfaction and congratulation. But, on the other hand, the fact that the supply of India and Ceylon teas has been found sufficient to meet the whole of the British demand has given rise to grave doubts as to whether the danger of over-production would not have to be met in the near future. For two or three years past, indeed, this question of over-production has been discussed by those chiefly interested in the industry, and suggestions have been made as to the necessity of measures for curtailing the output. No practical scheme to accomplish that object, however, has ever been devised, and in the meantime the difficulty has been met by a determined effort to open up new markets for the sale of British-grown tea. Until quite recent years Indian tea has met with scant favour in other countries, and China has almost completely maintained her monopoly in the continental markets, and even in the United States Canada and Australia. At the time of the Chicago Exhibition, however, efforts were made by the Indian and Ceylon teagrowers to cultivate a taste for their teas in the United States and Canada, and the results of these efforts have been very encouraging, the consumption of British-grown teas in these countries having nearly doubled since 1893. Attention has also been given to Australia as well as to the European markets, and in both these directions there is good promise of success. Australia, especially, is regarded as an excellent field; she has a population second only to Great Britain herself as tea-drinkers, and already 50 per cent. of her tea-import is British-grown. Even Russia, which has obstinately adhered to her preference for the finest Chinese teas, has begun to appreciate the excellence of the Ceylon growths, and is importing more and more each year. The same is the case with France and Germany, and to a less degree with Turkey, Holland, South Africa, and the South American republics. The net result of these attempts to obtain possession of a share in foreign markets has been that the exports of Indian and Ceylon teas to other countries than Great Britain have incresed from 19,600,000 lb. in 1893 to 51,148,124 lb. in 1897. With a good prospect that this increase will make further progress in the future, the dread of over-production has to a great extent disappeared, as it is found that there is still considerable scope for expansion of trade in these foreign markets.

It may safely be concluded, then, that the tea-growing industry of our Indian possessions is in a thoroughly sound condition, and has a good prospect of a prosperous future. The trade has, of course, had to meet with bad times and seasons, and during the past twelve or eighteen months has been experiencing one of the worst periods in its history. The recent increase in the price of the rupee has had the effect of stopping in a great measure the opening up of new estates, and this advance in the exchange and the famine and the plague in India have caused an advance in the price of rice—the chief article of food of the coolies—and so have increased the cost of labour to a serious extent. But, in spite of these difficulties, the reports of the established companies as to the results of last season's operations will show that in most cases profits have been fairly well maintained, and that there is no prospect of any serious falling off in dividends.

Considering the amount of capital embarked in this tea cultivation—the total capital of the Indian and Ceylon companies is something like £40,000,000—it is rather strange that so little interest has hitherto been taken in the shares of the various companies by the investing public. For one thing, the tea share market has not lent itself to any great extent to the purposes of the speculator, as the movements in prices are few and gradual. But there has always been a steady though quiet demand for the shares on the part of a small section of the investing public, and as during the last two years greater facilities have been offered for dealings in the shares, there has been a marked increase in the amount of business done on the Stock Exchange. A record of these dealings, with the fluctuations in prices and other information regarding the principal companies, is published in our columns daily. An examination of this table shows that there is an average yield on the present prices of the dividend-paying companies of something like 5 per cent. and it would be supposed that such a return would offer an inducement to more general investment in tea-growing companies. Many of the companies possess considerable reserves, which have been accumulated for the purposes of equalising dividends, and in addition they have in their holdings of actual landed property, buildings, machinery and tea plants such a

security as should certainly prove attractive to the investor. Tea shares are at present mostly held by people who have resided in India or Ceylon, and their friends—a class who have had an opportunity of seeing on the spot the stability of the industry into which they are putting their money. Still there has of late been a good deal more activity in the dealings in these shares, and there is every prospect that this activity will continue, as, owing to the adverse influences which have affected the tea-growing industry during the last year or two, the prices have declined to a level that is sure to attract the best class of investors. It is, however, a market in which it is desirable that investors should get good expert advice; for tea gardens, like vineyards, are good and bad, and can only be judged by experts.

TEA PLANTING AND FINE PLUCKING.

Mr. Hastings Clarke is an experienced coffee, as well as tea planter—having begun his career in Kadugannawa so far back as June 1860—and let us mention as a common circumstance in those days of old, that for weeks together in crop season, the planter had to keep in the field pretty well all day, having his midday meal sent out to him. Mr. Clarke has passed through harder times with coffee, than any as yet experienced with tea, leaving the fungus out of view. In other words, Mr. Clarke is not at all disappointed with tea on his present visit, even with all the adverse circumstances of the times. It must be confessed, however, that there are few old districts in Ceylon, in which tea does so well as in Kellebokke, its subsoil is particularly good, and this is shown by the way in which the tea goes on flushing even during the present unprecedented drought. For, during his two months' visit, Mr. Clarke has only seen two slight showers of rain in what is a generally wet district. Mr. Clarke is strong on "fine plucking"; his own system is the moderate one adopted by the late Mr. Taylor of Loole Condura and if it were generally followed and estates usually giving up to 600 and even 700 lb. per acre, reduced their incoming to 500 lb., he thinks 20,000,000 lb. less of an export than estimated, might be realized or say 15 million lb. less, if allowance is made for young tea. But to get the full benefit of fine plucking, there must be close inspection of the work in the field and a constant check maintained.

It is well that thoroughly practical experienced planters, like Mr. Clarke, should continue their connection with Ceylon; and should visit the island periodically. We trust to see Mr. Clarke back again, well and hearty, after a due interval.

LIBERIAN COFFEE IN SUMATRA.—"Old Hand" sends us one of his bright chatty letters, given on another page, with some amusing as well as useful information. What he tells us about Liberian Coffee and its curing and reception at home is very much to the point. No wonder that Sumatra planters should doubt there being so many plantations and planters in little Ceylon. Their huge island covers 162,000 square miles against our 25,000! The total population of Sumatra though, is not larger than that of Ceylon so far as is known. "Old Hand" notices the fact—marvellous indeed —that in the last Report of the Ceylon Planters' Association for the first time in its history, there is absolutely *no mention of coffee*!

FOOD SUPPLY IN CEYLON.

(EXTRACTS FROM ADMINISTRATION REPORT OF THE NUWARA ELIYA DISTRICT FOR 1897.)

There appears to be a general idea that the District of Nuwara Eliya is small, unimportant, and impoverished. Small it is, but the other two epithets certainly do not apply. It contains ore and a variety of gems and minerals; it possesses every variety of climate, except the worst; and there is no product which grows anywhere else in Ceylon which does not grow here. It is abundantly watered. and for the most part remarkably healthy. In Nuwara Eliya itself and its suburbs vegetables and fruits are readily grown and supplied abundantly. European vegetable extending, but the supply is much below the demand (owing to the large quantities daily sent to other towns and outstations), and this show the advisability of throwing open more lands for vegetable cultivation—*e.g.*, the Barrack Plains.

In the division of Kotmale the people get but one crop a year, but it is plentiful, and even if there were a deficiency they can supplement it with imported rice obtained in exchange for garden produce, cardamoms, &c.

Cardamoms are extensively c ltivated, and in native gardens they have taken the place of coffee. In fact, they are becoming a very important industry, exactly suited to native habits, and paying handsomely at present prices. The area of native tea gardens also is rapidly extending, and they show a fair profit owing to the cheapness of the labour employed.

In the Uda Hewaheta district the people get two crops a year, but the fields are not so fertile as those in Kotmale in consequence of the biennial cultivation without the use of manure. During the year under review the people had normal crops from their paddy fields and the most favourable weather. The onion cultivation, which was very extensive in the two Maturata korales, fetched good prices. The greater part of the district is studded with estates, which provide employment to the natives at all times of the year. The cart road from Kandy to Kurunduoya, which passes through the greater part of the district, gives the people the advantage of selling their produce at an enhanced value. The korales of Gannewa, Diyatilaka, and Gangapalata received abundant crops from paddy fields in addition to the garden and chena produce, and they fetched good prices. These three korales require much attention, and with frequent visits by the Revenue Officer there is every prospect of converting them into fields of industry of various kinds, the climate and soil being well adapted for low-country products.

In the Walapane district the rain was seasonable and well distributed, and the crop in consequence has been abundant everywhere except in those isolated villages bordering on the Badulla boundary, which are inaccessible for want of a road and ill-favoured in respect of water supply. There has been a scarcity of food in Arukwatta, which is one of those villages, and I had to make an urgent appeal to Government and obtain a sum of R100 to relieve their immediate distress. To obviate the recurrence of such isolated cases of distress, what this part of the district requires is—

(1) The opening of roads by a special grant from Government.

(2) Improvements to and restoration of irrigation works, which cannot fail to develop the country if worked systematically.

(3) The issue of asweddum licenses to improve irrigable lands where water is available.

(4) The leasing of lands suitable for coconuts and other useful products on the half-improved value system.

(5) Improvements to live stock, for which the country is well adapted.

(6) The establishment of village markets for the encouragement of growers of native products.

The estate and bazaar population lived on imported rice and had sufficient for their needs. They had however a hard time when the goods traffic was obstructed by the slip on the line at Alagalla. The prices of all imported articles suddenly rose to the highest figures ever known in Ceylon—looting and plundering were expected every moment in the bazaars, and, had it actually occurred, the results would have been disastrous. To the prompt and energetic action of the planters, with the co-operation of the police and headmen, is mainly due the preservation of order in these bazaars. I had to send an extra police force to Pundalu-oya, where all the coolies of surrounding estates flocked into the bazaar one day to plunder necessary articles of food when they found they were unable to pay the prices demanded by the boutique-keeprs. The panic and threatened damage were however avoided by the wise steps taken by the police under the capable direction of the Unofficial Police Magistrate, Mr. Curtis.

PLANTING NOTES.

HORTICULTURAL COLLEGE, SWANLEY.—The sixth annual report of the Women's Branch is before us. From this it appears that six former students are now engaged in market gardens, eight in public establishments, nine in private gardens, three in institutions, six in teaching. Miss Gulvin, formerly of Kew, has now taken a responsible post, with several gardeners under her. Three other young women are at Kew, and two in the Edinburgh Botanic Garden.—*Gardeners' Chronicle*, March 19.

CAMPHOR: A MINOR PRODUCT.—We direct attention to the letters of Mr. Nock and Mr. Owen on this subject. We have got a tiny bit of Mr. Owen's sample, so there is no mistake about his success; and as the camphor tree, like cinnamon, coppices well, if it will pay to extract from the young shoots and leaves, a very useful minor product the camphor tree may turn out to be. Experiments will have to be tried as to the best months or seasons for making the extract and in the low-country and hill districts, respectively.

CANAIGRE: A MINOR PRODUCT.—A planter writes:—"I send you a cutting from *Household Words re* Canaigre. A small quantity has been produced at Hakgala this year and I believe sent home for report." We quote as follows:—

In the California canaigre, hitherto looked upon as little else than a beautiful weed, agriculturists may find a new field for production and manufacturers an exceptionally useful product. When the Spaniards came to America they found that the Indians of the south-west were skilled in the oldest of all the practical arts—that of leather tanning. The Spanish historians of Mexico mention that the inhabitants of the country used the juice of a native plant in curing skins, and when cattle were introduced that this same plant was found useful in tanning their hides. Recognising the plant as a relative of the European dock, they called it "canaigre," which is a combination of two Spanish words meaning "sour dock." Canaigre possesses the greatest store of tannin of any known plant, and it is this that gives it a value almost inestimable in tanning processes. The culture of canaigre has opened up a great desert agriculture, established a new industry and source of wealth. English tanneries are extensive consumers, and the demand for canaigre chips has grown so rapidly that were every arid acre in south-eastern California and Arizona, the native and favourable habitat for the plant, set with canaigre, there would be no danger of glutting the market.

Mr. Nock will be sure to report *pro bono publico* if the plant is worth cultivating in Ceylon when he gets back a report.

A CURE FOR MANGE IN HORSES.—Boiled linseed oil, sulphur, and kerosene, equal parts: First mix the oil and sulphur, then add the kerosene, and mix well. Applied with a hard stubby brush. Also, a tea-spoonful of carbolic acid to a pint of lard, stirred in and well mixed—*Queensland Agricultural Journal* for March.

TEA BOXES AND RUBBER IN ASSAM.—The following is an extract from a resolution by the Chief Commissioner, on the Report on Forest Administration in Assam for the year 1896-97.

The larger quantity of timber and forest produce taken by purchasers throughout the province is accounted for entirely by the increase in the quantity of produce taken in the Garo Hills under these *gurkati* passes The quantity of timber removed by departmental agency was less than half the amount reported in the previous year, a result which cannot be considered satisfactory. The free grants of timber and fuel made during the year under home consumption permits and other concessions are estimated at much the same quantity as in the previous year.

TEA BOXES.

		Outturn, in boxes.	Royalty, R.
1893-94	..	368,323	20,016
1894-95	..	360,469	19,470
1895-96	..	384,488	20,917
1896-97	..	447,563	24,200

The outturn of tea-boxes from saw-mills in the Assam Valley districts which obtain their timber from Government forest shows some improvement. The result is, however, much smaller and the revenue derived by Government from this source is much less than it would have been if more active encouragement had been given by the Department to the saw-mill industry. It is very unsatisfactory that planters should still be compelled in a large measure to draw their supply of tea shooks from Norway and Japan. As members of a *quasi*-Commercial Department, the proper attitude for forest officers to take up in dealing with their customers should be one of conciliation and concession. The larger the development of the saw-mill industry the larger will be the profits of the department. Mr. Cotton has found it a subject of universal complaint throughout the province that the saw-mill industry is languishing, and it appears to him to be the interest as well as the duty of the Forest Department to remove the impression, which undoubtedly prevails, that this state of things is due to the unsympathetic attitude of the departmental authorities. This is another subject which is under special discussion between the Chief Commissioner and the Conservator.

The outturn of home rubber rose from 714 maunds in the previous year to 1,222 maunds, due chiefly to the Darrang *mahals* having been leased out this year, whereas they were closed in 1895-96. The outturn of foreign rubber also increased from 2,520 maunds to 2,825 maunds. The duty collected under both heads increased from R32,815 in 1895-96 to R56,178 during the year under report. Part of this increase, however, was due to collections which should properly be credited to the previous year. The general results under this head are satisfactory

The following figures show the financial results of the working of the Forest Department in this province for the last five years (according to the Forest year July to June):

	Receipts. R.	Expenditure. R.	Surplus. R.	Proportion of surplus to receipts.
1892-93	420,930	276,948	143,982	34·2
1893-94	492,811	265,421	227,390	46·1
1894-95	444,706	281,652	163,054	36·7
1895-96	404,482	289,323	115,159	28·5
1896-97	440,936	282,191	158,745	36·0

The results for the year, on the whole, compare favourably with those for the previous years.

MESSRS. LAARMAN & Co., of Amsterdam, have forwarded a Review of the 1896 Borneo Tobacco crop to Secretary of the B. N. B. Co. Whole crop 1896 in total :—13,992 Bales, British North Borneo Tobacco average about 91c. This is the price it was sold at *first hand*, value about ƒ1,910,000 or=£175,000.—*British North Borneo News.*

RAMIE FIBRE.—Messrs. Lee Hedges & Co. as Agents for Messrs. MacDonald, Boyle & Co. hand us a pamphlet on the Cultivation, Decortication, Treatment, and uses of Ramie Fibre. But it appears to be the same pamphlet we lately noticed and extracted from, the only difference is a correction on page 6, where the second Estimate does not include cost "of erection" of machinery.

HOW TO GROW LARGE MELONS.—A very simple method of watering and at the same time manuring melon vines is to sink a cement or bottled ale-cask a little over half its own depth in the ground. Then throw up the soil against the uncovered part of the cask, thus making it the centre of a gradually sloping mound, much like a scrub turkey's nest. Fill the cask with stable manure. Sow the melon-seeds outside and at a little distance from the cask. Every day or every second day, when the plants have begun to grow vigorously, water the manure in the cask. The liquid passes between the staves, and thus fertilises the plants. A distinct advantage of this process is that during dry weather, when surface watering would only result in baking and caking the soil, the plants draw moisture and nourishment from below, and thus the soil round the roots is kept constantly moist.—*Queensland Agricultural Journal* for March.

HIGH PRICE FOR TEA LAND.—Our contemporary the "Observer" falls into an error in supposing that the price paid—equal to £120 per acre—is the highest price paid for tea estate property in Ceylon. The honour of securing the very highest price per acre does not lie with any Agrapatna estate, but with Dukinfield, which was sold a short while ago for £30,000, or at the rate of £126 per acre. The history of Holbrook and its purchase is given in another column. It may be interesting to compare it with that attaching to Dukinfield, or, as the place was once called, Sylvakande. It was, like so many others of our crack tea estates, once covered with coffee, and was mortgaged to the extent of some £5,000. In course of time the mortgagee foreclosed, and bought the property in—raising another £5,000 on it, which was subsequently increased to £7,000—and proceeded to develop the estate. For a considerable time, it is estimated, the estate brought in a return of 30 per cent. upon the total capital invested in it; and it was ultimately sold, as already stated, for £30,000, which, being at the rate of £126 per acre, is the highest price ever paid for estate property in Ceylon. The estate consisted of 230 acres of tea and 54 acres of forest. The latter was valued at £1,000, and this left the rate for the tea about £126 per acre. We may add that the estate gave a profit of £3,000 in 1896, and, judging by the average obtained for its tea last year, about a similar amount for 1897. Some estates have gone through strange vicissitudes in this respect, and the increase which has taken place in the saleable value of Ceylon tea estates of late years is almost incredible. Six years ago, for instance, we are told, an estate which fetched £5,000 three years afterwards was parted with for £9,000. Only 18 months ago it again changed hands this time realising £16,500. Again, another case is brought to our notice. The sum of £6,800 sufficed to purchase an estate seven years ago when it had no factory, but last year the purchaser refused £30,000 for it! It is interesting to note that a well-known Ceylon planter, now Managing Director of more than one Sterling Tea Company in London, refused to give more than £6,500 for this estate, so that he lost over £20,000 by not springing another £300—a reflection which we feel sure must be a most unpleasant memory to him to this day!—Local "Times."

TROUT OVA.—The letter, which Mr. Burrows, Hon. Secretary to the Ceylon Fishing Club, sends us (see further on) will be read with great satisfaction, not only by all anglers, but by all who wish well to the most interesting, and even important experiment of introducing trout into Ceylon streams. The capture of so fine a fish, the other day by Mr. Masefield, shows the potentialities involved, and we do not see why most of the Dimbula, Dikoya, Maskeliya, Ramboda and Upper Uva streams should not be supplied with fry, by-and-bye. Never was there a scheme better worth persevering with.

NARROW WAGGON TIRES have been proved inferior to broad tires by the Missouri Agricultural authorities. Given the same amount of draught, or pull, a load of 2,518 lb. can be hauled over macadam on 6in. tires, and only 2,000 on 1½in. tires. Tests have been made on all kinds of roads for a year, and the only surfaces unfavourable to broad tires have been found to be dry roads with several inches of dust, and sticky clay roads with firm ground underneath. On clay roads deep with mud, but drying on top, the tests were favourable to the broad tire. Six inches, the authorities have decided, is the best width of tire for a combined farm and road waggon.—*Home paper*, March 17.

COFFEE IN SOUTH AMERICA.—According to the *Bulletin* of the Bureau of the American Republics for January, coffee is still in the experimental stage of cultivation in Paraguay, but numerous plantations are now being made in different parts of the country, and especially in the government settlements. The largest plantation is to be found in the department of Emboscada. There are in this plantation already some 200,000 trees bearing fruit which is declared by some to be superior to the Brazilian berry. The results so far are considered satisfactory and encouraging, but whether the venture will ultimately prove a profitable one it is not at present possible to say. The government assists the coffee planters by granting them facilities for acquiring seed and by offering a reward of 30 cents for every plant transplanted and in good condition at the time of application. A loan of 30 cents for each plant may also be obtained, and, if granted, is payable in two yearly installments of 15 cents per plant.—*Rio News*, Feb. 22.

IMPERIAL TEA DUTY.—We had personally compiled a more elaborate return than the following, for our Handbook, a few weeks ago. Still the figures here given are strikingly put by the London *Times*:—

From 1836 to 1852 the tea duty was 2s 1d per lb.; in 1856 it was 1s 9d; in 1860 1s 5d; in 1863 1s; from 1865 to 1889 6d; and since 1890 4d. The yield of the duty is now about what it was 60 years ago, when the burden was more than 6 times what it is now. The yield of each penny of duty, which was £185,000 in 1836, was £263,000 in 1856, £426,000 in 1866, £520,000 in 1876, £745,000 in 1886 and in 1896 it had risen to £949,000. At the same time the whole sale price of tea apart from the duty had been steadily falling. Thirty years ago it was on the average 1s 7d per lb.; it is now only 9½d. Nor is it unimportant to note that while, just after the close of the Crimean War, we drew almost the whole of the tea consumed, in Great Britain from China, about 80 per cent of the supply comes in the present day from India and Ceylon.

The price of tea averages 9 d, says *The Times*. We wish it did in Mincing Lane.

SCIENCE AND MANURING.

Certainly, one of the most valuable contributions to the discussion of this subject that we have read for a long time is that printed elsewhere above Mr. A. Baur's name. It is a letter that ought to be carefully considered by every Proprietary Planter and responsible Estate Manager in the island. Not simply is it well to understand the action of fertilisers aright; but immensely more important is it to make sure that in spending money on certain costly ingredients, we are not doing the wrong thing—wasting our money in fact, or so using it that the return for our investment cannot be reaped for many years to come. Mr. Baur shows how all this may happen, and so plainly that he who runs may read to understand. But we may be allowed to supplement what he writes with the words of one of the most illustrious Agricultural Chemists of the day, who writes:—"In 25 or 30 years, Europe has exhausted the supply of Peruvian guano. It is now doing its best to use up the available supply of nituate of soda which is being brought over from the coast of Chili. By the replacement of gas by electricity another powerful agent of fertility—sulphate of ammonia—will soon disappear. What then shall become of us with the ever-increasing desire of increasing the fertility of our soils? The prospect might be alarming, if it were not for the micro-organisms, whose existence we have so long ignored and whose real importance we only begin to understand. As a matter of fact we can look forward now without the least fear to the exhaustion of those artificial sources of nitrogen, which we considered indispensable to ensure good crops. We can proclaim, not as a prophecy, but with certitude: the reign of the nitrogenous manures is finished and that of the bacterias commences."

Still further, we may put the matter after a more practical fashion still. We understand that one of the most approved preparations of artificial manures hitherto applied for tea in Ceylon consists of 7 to 8 per cent. Nitrogen, 2 to 3 per cent Phosphoric Acid, and 4 or 5 per cent of Potash Now let this be contrasted with what is formally recommended by the well-known Analytical Chemist Mr. John Hughes, and the immense difference cannot fail to be realised:—

3 % Nitrogen; 10 % Phos. Acid; 15 % Potash.

Still, there is nothing like a practical demonstration, and we would therefore recommend a trial of each mixture on an acre or two of the same tea land with as nearly as possible the same conditions.

COFFEE CULTURE IN HAWAII.

Consul-General William Hayward, at Honolulu, has been studying the possibilities of coffee culture in the Hawaiian Islands. He has spent some time inspecting the different coffee plantations to find if coffee could be grown profitably and the amount of capital required for its successful cultivation. The investigations was undertaken as a result of numerous inquiries from this country. The report is, therefore, very largely advisory in character. In part Mr. Hayward says: "There is no doubt in my mind, and I think it has been demonstrated, that coffee will grow in many parts of the islands, and, if properly cultivated, will bear crops which will compare favorably with those produced in other countries. Still, the industry is so young that it is yet a question what per cent will be realised on the investment. Estimates range from 12 to 75 per cent. In questioning the planters on the subjects which had been decided, I found there was an unanimity of opinion, but no two men could, off hand, give the same estimate and support the opinion by facts. This year's crop will furnish some information as to the value of Hawaiian coffee in the markets of the world. The production, heretofore, has been so small that the price which has been paid is no criterion of what the standard value will be. The prices received have probably been for perfect coffee, the broken berries being reserved for home consumption. I believe, however, that the planters will lose nothing by proper grading. The quality of the coffee raised here is of the best. I was shown a letter from a prominent coffee dealer in New York to whom had been sent several samples of Hawaiian coffee for appraisement. He thought after proper grading the best would bring the New York 22 cents per pound.

"I do not think it advisable for any one to come here with the sole object of raising coffee unless he has at least $5,000. It would be better if he had $10,000 to $15,000, or even $20,000. With that amount of money, enough has already been accomplished to demonstrate that coffee raising will be profitable. One can eventually become a coffee planter on much less if he will raise other products on which he can quickly realize, only planting coffee as he means will permit.

"I visited a place where I saw as fine a lot of corn as ever grew. It was planted between one-year-old coffee trees. The owner told me that he got two crops a year, for which found a ready sale. The land produce each year $100 worth of corn per acre. Potatoes would, I am sure, grow well on this land and command a good price. I had a conversation with a gentleman who is now engaged in raising fruit in California. He had just returned from Hawaii, having taken about the same trip I did. He told me he had bought a lot and intended to put it in fruit and coffee, as he felt confident that the fruit would be a success, even if the coffee was a failure.

"There is a class of people in the United States with certain incomes who, for reasons of health, are compelled to leave their homes in winter for a milder climate. Coffee raising to them, I think, would be a good thing. The climate is mild without being enervating. An investment of from $10,000 to $15,000 would buy a place already started, which would pay enough to allow of the employment of a competent manager, the expenses of a winter's residence on the place, and more than legal interest on the investment.

"To the man who has decided to embark as a coffee planter I have a few words of advice to offer. Do not under any circumstance commit yourself to the purchase of land until you have thoroughly gone over every foot of it, and do not do it then until you have visited all the coffee districts. While coffee, apparently, will grow in all the districts, you will be surprised to find how much they differ climatically. My advice would be to land at Honolulu and, after ascertaining all you can from the government and private parties as to land which is on the market, take a steamer for the island of Hawaii, buy a horse and employ some reliable person to pilot you around the island, visiting as many places as you can. You will be surprised to find how much you will have learned. You will also see how the planters live and work, and will be better able to decide whether the life will be agreeable to you. I do not believe everyone is fitted to be a coffee planter, and many will foolishly plunge into the business only to realize, in a few months, when too late to recede, that ten hours, work every day in a clearing with, in some instances, your nearest neighbour a mile or two away, with no means of visiting him, save over a miserable trail, is far different from life in a big city."—*Rio News*, Feb. 28.

THE NEW AMERICAN TEA LAW.

We read in the latest *American Grocer* that the constitutionality of the new tea law has been attacked by a firm of importers, through a suit brought in the United States Circuit Court, to restrain the Collector of Customs at New York from destroying a lot of rejected tea.

The tea trade, ostensibly, sought to exclude the importation of unwholesome or injurious teas—a very commendatory act; but the new law, with its arbitrary standards, excludes many low-grade teas that are unobjectionable from a sanitary standpoint. The attorneys in the case state that the whole proceeding, in connection with examination is secret and somewhat of a "star chamber" character. The Secretary of the Treasury fixes his standards in February of each year. If teas are on the way during the change of standards, on arrival they will be judged by the new standards, the law making no provision for their being judged by the old standards. The claim was made that Congress was fooled in passing the act, the real purpose of its being passed being to shut out moderate-priced teas so as to make it possible to put on the market large quantities of old and inferior teas which could not compete with good, low-priced teas, and that this has been the actual result of the act. At any rate, the existence of this act makes the importation of teas a business too precarious to be continued. The claim of the plaintiffs is that the act is unconstitutional and void. The tea trade are said to be very timid in resisting the enforcement of the act, because the power of the examiners is so absolutely discretionary that a slight prejudice against a firm on the part of an examiner is liable to unconsciously affect his judgment, although he may be perfectly honest in the premises. No claim is made or suggestion that the examiners have not acted in this case with entire honesty and good faith; but the fact is that the power to almost arbitrarily exclude teas without appeal is too great a power to place in the hands of any official. The appeal to the Board of Appraisers is almost useless, inasmuch as the persons employed to examine teas acquire the habit of being a sort of prosecutors for the Government, and their natural tendency is to affirm one another's reports without any want of good faith on their part. Also the standards fixed are really no test of the quality or wholesomeness of the tea. In point of fact, the teas excluded are of a far higher quality as to purity and fitness for consumption than great quantities of teas which are admitted without objection.

The operation of the act is also capricious and arbitrary. At the port of New York the examiners seem to go on the principle of giving the benefit of the doubt to the Government in excluding the teas. In other ports they adopt the opposite policy.

The ostensible purpose of the act is to compel the American people to drink a higher-priced class of tea than they would otherwise do. The pretext for the exercise of the power by Congress is its constitutional power to regulate commerce; but the real, practical operation of the act is the exercise of police or health power for the tea-drinking in the United States. This power is not vested in Congress, and if the act were expressed to be for that police purpose its unconstitutionality would be beyond question: but the power to regulate commerce is not lost to Congress, because its results may be in some respects the exercise of police power.

There is a great deal of truth in the above criticism says the *American Grocer*. We cannot believe that Congress designed to exclude any tea not injurious to health, simply because it is low in price. The standards adopted by the Government do not recognize the amount of *theine* in tea; the amount of extractive matter; amount of ash, or other considerations which determine the physiological value of tea. The standards are purely commercial, and it is a well-known fact that many high-priced teas are inferior, from a chemical standpoint, to many low-grade teas. The absurd sieve test imposed last year revealed the unfairness of the standards governing last season's import, as it excluded some of the choicest teas grown in the world. We believe that the trade (including the critics) are a unit in favour of excluding tea that is injurious to health, but they are not a unit in favour of excluding very cheap tea if it is wholesome.

We can say positively that some firms here have been overloaded for years with unsaleable low-grade teas. If the Government stops the importation of a tea below the standard, is it not equally its duty to stop the sale of similar tea now on the market?

Another feature of the situation is revealed in a letter from China, printed in the New York *Journal of Commerce* of Feb. 21, in which is a statement showing conclusively that the new tea act was justifiable, in so far as it prohibits imports of unwholesome or adulterated tea, and that it has had the effect of compelling Chinese dealers to improve the leaf. Reference is then made to facts to demonstrate the beneficial effect of a National tea act; but should the act deny entry to a tea that is wholesome, simply because it is of low grade, or, what some designate cheap and nasty? If the same rule was applied to the importation of coffee, *triage*, or very low grades, would be excluded. And yet it has never been charged that such coffee is prejudicial to health.

Thus far the tea act has enabled holders to unload low-grade teas imported prior to the act at a big advance, their conscience not standing in the way of their selling teas for consumption that are below the established standards; while their conscience is very tender when similar teas are now offered for entry under the act.

We very much doubt, says our contemporary, if the Government has a right to establish any other standard than that of wholesomeness in admitting tea or any other article of food to entry for consumption. We are glad that this question is to come up for review by the courts.

EAST INDIAN PLANTING.

A writer in Calcutta paper, *Capital*, thinks that a farm for the purpose of producing lac affords as good an investment for capital as any the country can offer. It is said to have failed when attempted in Cachar, but that was simply from the person who undertook the business being unacquainted with the habits of the insect, and placing his nucleus out in the full blaze of the sun, whereas it is only found in the densest forest undergrowth. Again, he says, take the item of beeswax. The southern face of the mid-mountain range teems with hives: and in many villages artificial ones may be seen. Yet no European has turned his attention to the important industry of apiculture, though no more eligible site than the orange groves could be had, the blossoms of that fruit in March and April affording, perhaps, the most suitable food for the many million of insects that are encountered. Although there is but little doing in the wholesale trade, the price of the comb, as

brought in by the people, has risen within the last decade from two to six annas per seer, and, allowing 25 per cent. for honey and impurities, there results a difference between the R20 for the 70 seers that will make up the cwt. and £7 to £8, the latest quotation in London for Zanzibar wax which the Assam article resembles. Unfortunately, the country is so sparsely inhabited that even were a monopoly secured, the quantity brought in would hardly justify the establishment of a go-down; so if wax is to be produced on a large scale, systematic apiculture must be resorted to, and the above figures sufficiently indicate the profits of such an undertaking. The only expense would be the cost of hives, dwelling-house, and fencing-in; the place would need shading and have to be in the neighbourhood of clean water, for the bee is a thirsty insect and affects seclusion. The writer might suggest also that European cultivators could do a great deal in ensuring our getting a purer wax from India than we obtain at present. Referring to castor oil he suggests that the other oil plants might be cultivated for the sake of the manure afforded by the oilcake. He also alludes to the possibilities in growing ginger, turmeric and anise, which could be raised in any quantity.—*British and Colonial Druggist*, March 18.

NYASSA RUBBER—A NEW AFRICAN SORT.

Among the lots of rubber offered at the Antwerp inscription sales in February was one of 3,360 pounds described thus: "Nyassa—generally small and medium-size ball, hard good quality, Upper Congo red ball quality." The brokers' estimation was 7·35 francs per kilogram, while prime Lagos silk strips were put down at 7 francs. Nyassa rubber comes from the new protectorate of British Central Africa, and in regard to it we quote from the *British Central Africa Gazette*, published at Zomba, in the issue for November 8th, 1897:

"Considerable quantities of rubber are now being collected on Lake Nyassa, and it appears not improbable that this may become an article of extensive export from the protectorate. Rubber is being sent down from Bandawe at the rate of about two tons per month at present. It is collected from the *Landolphia* vine. This creeper does not grow all over the country, but it is found solely along the banks of streams. In the country west of Nkata and Bandawe all the numerous stream valleys contain *Landolphia*."

This rubber is shipped by the steamers of the African Lakes Corporation, Limited, across Lake Nyassa, down the river Shire to the Zambesi, and thence to the mouth of the latter, on the East African coast. The amount of such shipments, during the year ended March 31st, 1897, was 5,667 pounds, valued at the point of export at £277. The value of the rubber shipped during the preceding year was £28. —*India Rubber World*, March 10.

BRAZIL AND ITS RESOURCES.

"It is remarkable how little the average American businessman knows, not of Brazil only, but of the entire continent to the south of him," says Hon. Thomas L. Thompson in the March *Forum*. "He does not realize that the link is nearly formed by which he may ride across the continent, from Valparaiso to Buenos Ayres, in a railway coach with accommodations equal to those of the best Pullman car. * * * While seeking in the Far East for consumers of his surplus products of farm and factory, the average American overlooks the opportunities open to his enterprise and sagacity in a continent which lies, comparatively speaking, at the threshold of his factory and the gateway of his farm. At the same time, he fails utterly to realize that the United States—the chief consumer of South American products—is paying, by way of exchange, a vast tribute to Europe, not merely on what is taken from her nearest and most natural market for her own products, but on all she sells there. If intelligently utilized, not only would the semihome markets of South America save to the American consumer what he now pays in exchange to his more enterprising European competitor, who has forestalled him in the exploration and development of the vast resources of the southern republics, but they would in time turn the overwhelmingly adverse balance of trade to the credit of the United States. * * * Today the leading commercial city of Brazil, Rio de Janeiro, with a population of nearly 750,000 souls, contains but one strictly American mercantile house supported by any considerable amount of capital. In the entire republic, with a population of 16,000,000, only two such houses exist. The American colony, registered, numbers probably 1,500, embracing a few coffee buyers (agents only), farmers, clerks, mechanics, dentists and other professional men scattered over the country, while the British, French, German, Portuguese and Spanish colonies number respectively, in the order named, many thousand inhabitants, representing hundreds of millions of dollars placed in mercantile, banking, mining, transportation and other pursuits which yield remunerative dividends. * * * I believe that Brazil offers many good openings to energy and enterprise if properly guided by administrative capacity and duly supported by capital. It is obvious, in particular, that a large number of energetic and intelligent Americans engaged in industrial pursuits in Brazil would have an enormous influence in developing the natural resources, and, consequently, in increasing the purchasing power, of the country, as well as in directing trade toward the United States."—*Bradstreets.*

TO COMPUTE THE WEIGHT OF LIVE STOCK.

Ascertain the girth, in inches, back of the shoulders square and the length, in inches, from the buttock to a point even with the point of the shoulder blade.

2.—Multiply the girth by the length and divide the product by 144 to arrive at the superficial feet; then multiply the superficial feet by the number of lbs. per foot for cattle of different girths, the product of which will be the number of lb. of beef, veal or pork in the four quarters of the animal.

3.—For cattle of a girth of from five to seven feet take 23 lb. to each superficial foot and for a girth of from seven to nine feet 31 lb. to the superficial foot.

4.—For small cattle and calves of a girth of from three to five feet, 16 lb. to the foot, and for sheep, pigs and all cattle measuring less than three feet, 11 lb. to the superficial foot.

5.—When the animal is but half fattened a deduction of fourteen in every 280 lb. or one stone in every twenty should be made, but if very fat, one stone for every twenty should be added.

6.—Suppose it is desired to ascertain the weight of an animal, whose girth is six feet four inches and length five feet three inches.

7.—76 inches girth by 63 inches length equal 4788÷144=33·25 superficial feet. Multiply this result by 23 lb. and you will have 764·75 lb. 54.4·7 or stone.

8.—The deduction or additions mentioned in paragraph five should then be made, according as to whether the animal may be in ordinary or in every fat condition.—B. C. ORGILL, in the *Journal of the Jamaica Agricultural Society* for Feb.

MARKET FOR MINOR PRODUCTS.

London, March 17.

ZANZIBAR VANILLAS.—Vanilla was introduced into Zanzibar by Jack Savey, an old sailor, who planted the vines at his house more for decorative purposes than anything else; but the plants have done so well that Savey has had more than one crop of good vanillas off them. His place is in the Mwera Valley. A local journal, referring to the matter, says "plantations may be put down with the reasonable certainty that they will in due course come to flower and fruit. If the industry were seriously taken up, there is no reason why Zanzibar should not in time become a large exporting-country, and run in harness with Reunion and Seychelles."

CINCHONA.

CLASSIFICATION.—Before the commencement of the sales on Tuesday Mr. David Howard, speaking as a manufacturer, drew the attention of the buyers to what he considered a defect in the classification of barks as regards the term "slightly country-damaged." As matters stood now the question of damage was a confusing one, he said. It ought to be clearly understood and adhered to that a slight discolouration of manufacturing bark, such as principally arose through defective collection, should not be classed as "country-damaged" unless the bark was musty or damp. "Sea-damaged" should remain as at present. Also slightly musty bark should not be classed as "country damaged." Another point was, Would the druggists be prepared to allow any such licence? Mr. Woodhouse suggested that Mr. Howard should submit his proposals in the form of a motion at the next sales, and this he agreed to do. Mr. Howard also complained that the August bark-sales in London followed very closely on the Amsterdam sales, and it was a great strain to analyse two lots of samples in so short a time. The whole matter will come up a month hence.

LOWER PRICES.—The auctions were then proceeded with, the tone being better than a month ago, and buying fairly good, especially for the American market and druggists. Altogether there were eleven catalogues, which included 2,826 packages of bark, divided as follows:—

	Packages offered	Packages sold
East Indian cinchona ..	2,335	1,641
Java cinchona ..	240	43
Ceylon cinchona ..	105	105
South American cinchona ..	89	26
African cinchona ..	57	5
	2,826	1,820

The bulk of the offerings sold at a decline of ⅛d to ¼d per lb. the unit being generally ⅞d to 1d—a sensible decline. The principal buyers in order of the quantities of bark purchased by them were as follows:—

	Lbs.
Agents for the American and Italian factories	121,683
Agents for the Brunswick factory ..	72,592
Messrs. Howards & Sons.. ..	43,010
Agents for the Frankfort and Stuttgart works	30,085
Agents for the Imperial Quinine factory	24,750
Agents for the Auerbach factory ..	23,128
Agents for the Mannheim and Amsterdam factories	16,921
Druggists, &c	108,450
Total quantity sold ..	440,619
Bought in or withdrawn ..	213,534
Total quantity of bark offered	(51,153

The following prices were realised:—Java, ledger stem chips, 4⅜d to 4½d per lb.; South American, Bolivian cultivated Calisaya quill, 5d to 5⅜d; 25 bales artagena, 4 bales Pitayo, and 29 Maracaibo were bought in. Five bales of African chips, 3⅜d; Ceylon Succirubra, natural stem chips, 2½d; fair to good renewed shaving, 4¼d; hybrid root, 3⅞d to 4¼d; East Indian, natural red chips and shavings, 2d to 2¼d; fair to good 2⅜d to 2⅝d; fine, 2¾d to 2⅞d; ordinary renewed, 1⅝ to 2¼d; fair to good, 2⅜d to 2⅞d; druggists medium quill, 3½d to 4½d; fine bold silvery, 7¼d; small crown chips, 1¼d to 1⅝d; medium to fair, 2⅛d to 2½d; good, 2⅞d; to 3⅛d; good rich renewed, 4d to 5¼d: ordinary, 3d to 3⅜d; small ledger chips, 1½d to 2d; medium to fair, 2⅛d to 3½d; and renewed, 2¼d to 3⅞d per lb. The offerings in the drug-auctions today are reported under that section. The arrivals this week include 1,724 packages from Calicut and 342 from Beypore.

JAVA CINCHONA.—The Dutch Indian Government report on the Java cinchona-plantations for 1897 has just been issued. A good part of the report is devoted to consideration of the influence of mossing and different methods of culture upon the quinine value of the bark. During 1897 152,000 seedlings were planted—viz., 35,000 Ledgerianas, 77,000 Succirubras, and 40,000 hybrids of these two species. The total number of trees in the plantations at present is 2,749,570, consisting of 1,718,495 Ledgerianas, 496,534 Succirubras, 476,846 hybrids of these two species, and 57,695 officinalis. We have also to note that the Dutch Indian Government has issued a decree, stating as a preliminary measure for the conversion of the Government cinchona-plantations in the Preanger residence of Java to a mere experimental station it has been decided gradually to uproot those parts of the plantations which it is the intention to abandon. The post of assistant-director of the Government cinchona-plantations is abolished, and until the reforms for restricting the Government undertaking to an experimental station are complete, there will be appointed an official botanist at a salary equal to 500*l*., 580*l*., and 670*l*. per year respectively, with free house.

BRAZIL CINCHONA.—Should South America ever regain the position she once held in the supply of cinchona to Europe depends upon whether she will be able to grow the richest bark, and secure cheap transit and labour. In this connection we notice some progress in the first requirement, the cinchona-plantations in Brazil having put into the ground close upon half a million Ledgeriana seedlings, and 20,000 seedlings of hybrid cinchona. The plantations are under Government supervision, and the immediate intention of them is to provide an adequate supply of quinine-yielding bark for home use. It is not inconceivable that in course of time sufficient bark may be produced to permit of exporation.

CASTOR-SEED.—Small sound seed sold at 4s per cwt.

CROTON-SEED.—Good bright sold at 54s per cwt.

VANILLA.—Nearly 500 tins offered, of which about three-fourths sold: good to fine crystallised chocolate, 8 inches to 8½ inches, 24s 6d to 25s.; 7½ inches to 8 inches, 22s; 6½ inches to 7½ inches, 18s 6d; to 20s 6d 4 inches to 6½ inches, 16s to 18s; good fresh, 4½ inches to 6 inches, 16s; medium brownish 12s 16d, to 16s and dry foxy at 10s to 10s. 6d.—*Chemist and Druggist*, March 91.

EXPERIMENTS WITH RAMIE.

KURUNEGALA ESTATES COMPANY.

The directors of the Kurunegala Estate Company laid their annual report before the shareholders on the 29th ultimo. The Company is a private one, but a few particulars are available. The estate is all young, and the tea planted is very promising. In tea there are 17½ acres, rising three years, and 102 acres rising two years, and 120 rising one year. Of Liberian coffee there are 140 acres rising 3 years, and of cacao there are 108 acres from 3 to 5 years old, and most of the land is interplanted with coconuts. This year it is intended to plant up the Liberian coffee in tea and also about 40 acres of new land. The total acreage is 1,189 acres. There are about 10 acres of Rhea fibre, and the Company has imported a decorticating machine, and is going to make some experi-

ments; and, if the yield is satisfactory, it is intended to expand the acreage in that product at once.

The directors for the new year are—J. Manley Power, Managing Director; E. Scott, F. H. Shelley and H. Reynolds.

REPORT.

The directors have pleasure in submitting their report on the affairs of the Company for the year ending 31st December 1897.

The following is the detailed acreage of their property :—

	Acres.
Tea and Coconuts over one year old ..	110
Tea over one year	72
Tea and Coconuts over 2 years old ..	17 ½
Tea and Rhea one year old	15
Cacao in bearing	52
Cacao not in bearing with Coconuts ..	79
Cacao, Coffee and Coconuts in bearing ..	13
Coconuts four years old	11
Liberian Coffee and Coconuts, two years..	140
	509½
Jungle and Chena	679½
Total Acreage ..	1,189

All the products, with the exception of the Liberian coffee, are coming on well, and the Directors propose to plant up the whole of the Liberian coffee in tea during 1898, and also 50 acres of the cacao "not in bearing." The whole of the tea was supplied in 1897, and the young plants are coming on satisfactorily.—Local "Times."

SALE OF PARA RUBBER SEED.

Acting under the instructions of Mr. John C. Willis, Director of the Royal Botanical Gardens of Ceylon, Mr. C. E. H. Symons, put up for sale at the Chamber of Commerce recently 70,000 para rubber seeds in seven lots of 10,000 each. The sale was poorly attended, there being only seven gentlemen present, besides Mr. Symons, but the bidding was satisfactory if not brisk. Mr. Symons opened the sale by reading the conditions under which the seeds were to be purchased, stating these to be that purchasers would be required to enter into a written agreement to the effect that the seed shall be cultivated in Ceylon in suitable districts and that it shall not be resold. Some desultory informal discussion followed as to the interpretation of the phrase "suitable locality," Mr. Symons explaining the matter by quoting from a letter. The first lot of 10,000 seeds was put up for sale at the upset price of R15, and the first bid was a rupee higher. The price briskly rose to R29, at which figure the hammer fell to the bid of Mr. M. Bremer on behalf of Messrs. Geo. Steuart & Co. The second and succeeding lots of 10,000 each were put up at the upset price of R25. R27 closed the competition for the second lot for Messrs. Lee, Hedges & Co. Mr. R. J. Booth captured the third lot (for Messrs. Cumberbatch & Co.) at R26. The same figure won the fourth lot for Mr. R. F. S. Hardie on the bidding of Mr. Tulloch. The fifth lot fell at the upset price R25, to Messrs. Finlay, Muir & Co. The same firm secured sixth lot for a rupee higher (R26) and with another rupee more (at R27) purchased the last lot as well.

BOLIVIA has an area of 499,200,000 acres, and a population of 2,500,000, or an average of nearly 200 acres to each inhabitant. This land is extremely rich in valuable woods, silver, copper, tin, etc., and the soil is especially adapted to the cultivation of coffee and tobacco.—*American Grocer.*

SALE OF A VALUABLE DIMBULA TEA PROPERTY:

OVER £102 AN ACRE PAID FOR HOLBROOK.

We learn that the price paid by the Messrs. Wyse to Mr. Thos. Mackie, the seller of Holbrook, in the Agra-patena division of Dimbula, is £20,000. The estate consists of 188 acres, of which 160 are in tea of all ages, with 28 acres of grass, patna and some timber; while trees are freely planted throughout the cultivated lands. There is no Factory—the tea being made at Agra Ouvah—but there is a valuable Cattle Establishment for Dairy, and Manuring purposes; and also roadside kaddies paying rent, where large heaps of manure accumulate from time to time. The price paid shows that confidence in high-grown tea in Ceylon has by no means abated; but as a residential property, Holbrook has a special value, and it is besides a perfect model of a highly-cultivated plantation on fine soil, with a delightful Eastern aspect. The price, we need scarcely say, is equal to more than £120 per acre.

Holbrook was originally opened as a select "home" estate—a place to retire to whatever happened—by Mr. H. S. Saunders. When the bad days in coffee arrived, we believe Mr. Saunders more than once cheered his friends by remarking:—Well, if the worse comes to the worst, there is Holbrook to retire to!' Alas when the big crash did occur, Mr. Saunders like so many more had to say good-bye to Ceylon; and Holbrook was taken over by Sir Alfred Dent's Firm. Exactly four years ago, Mr. Thomas Mackie purchased this model little place and at a price that caused some people to think that Mr. Mackie was rather rash; but with the result that—apart from an income which has averaged £2,200 per annum from the property,—Mr. Mackie has now doubled his capital plus £500! This, of course, is one of the exceptional experiences—almost romances—connected with estate property in Ceylon of which we learn at rare intervals. Let it be clearly understood that Holbrook comprises one of the choicest bits of soil in the country, with a perfect climate for tea and to crown this, that most liberal and judicious cultivation has been followed by Mr. Mackie's direction, admirably carried out by his Superintendent Mr. Bartlett. Mr. Mackie has himself been a noted cultivator since the old Pitikande (Matale) days—his successor there Mr. Joseph Fraser, well maintaining the tradition. Purchasing Holbrook for over £10,000, Mr. Mackie of course at once formed a large Cattle Establishment, having special advantages in grass and patena. Moreover the estate had a long row of way-side "kaddies" for which rent was paid, and through which a further supply of manure was obtainable. Not only for manure too, were the cattle valuable: Holbrook Dairy supplied the district and hospital, with fine milk and butter, and this made no slight adjunct to profits. Briefly, Dairy and Kaddies yielded an average of £550 clear profit per annum, reducing the crop return average to £1,700; but let it be understood that this latter came almost entirely from 93 acres of tea which averaged 867 lb. per acre in crops, one field giving considerably over 1,000 lb. per acre while the price realised has always been much above the island's average. Of course, liberal cultivation told; but the soil and climate were so good that the little place only required pruning once in three years. It will be seen therefore that the Messrs. Wyse buy on a ten per cent basis as regards the experience of the past four years; but it may be asked

where is the security against adverse exchange and a fall in prices from over-production? Well, there is this great advantage, that the new proprietors have 62 acres of young tea, very fine jât, coming into crop, and that the interference of "coffee" in certain fields will be quite a thing of the past—so that even at £20,000 or £120 per acre—the very highest price, we believe, ever paid for tea land in Ceylon?—there is no reason to doubt that the purchasers may do well. The Agrapatna tea is a choice product and will always—if properly prepared—command a good price; while the fine jât and rich soil guarantee the maintenance of flavour, body, &c. It is interesting to learn how the Messrs. Napoleon Bonaparte Wyse—relatives of the great Napoleon and the late French Emperor—came to invest in Ceylon and buy Holbrook. The proprietor of Choisy estate, Ramboda, is a merchant, Mr. J. J. Marcel, who was in Ceylon before our day, but who continues to read his *Overland Observer* and T.A., and from whom we hear occasionally. For Mr. Marcel, as Agent and Inspector of Choisy, Mr. Mackie acts. The Messrs. Wyse know Mr. Marcel; they also brought out letters to the highest in the land, and have had ample opportunity of learning all about our higher tea districts. Indeed one of the sons, Mr. N. Bonaparte Wyse, has been assistant on Holbrook under Mr. Bartlett for nearly a year, so that these shrewd as well as accomplished and wealthy French visitors have, by no means, bought "a pig in a poke." We have already mentioned that Mr. Wyse, senior, and Mr. N. L. Wyse have left for Mauritius, where doubtless they have also an interest in estate property.—But now to turn to Mr. Mackie's side, we know, from frequent talks with this gentleman during the past two or three years, how dear the place had become to him and that he has sold, with great reluctance even at £20,000, due to the fact that he had decided to return home on recently joining the firm of Messrs. Taylor & Noble of Leadenhall-street. Holbrook is simply a perfect residential property with delightful surroundings in mountain, forest, patana and river scenery as well as in its "perfect" climate. We may therefore well congratulate the purchaser of the property and home, of which he took possession yesterday, and feel assured that if justice continues to be done, Holbrook will return fair, if not good, interest on his money.—We may add that Messrs. Julius & Creasy were law advisers for Messrs. Wyse and Messrs. J. F. & R. F. de Saram for Mr. Mackie.—And it may be well to say in conclusion that Mr. Mackie (whom we are glad to learn is in better health than he was some time ago) is by no means withdrawing from his large interests in tea in Ceylon. He is one of the largest shareholders in the Great Western Company and also holds a big interest in the Standard Company; and maintains full faith in the future of Ceylon high-grown tea—provided, we suppose, that the Currency Committee do not raise the rupee still higher!

THE RISKS OF AGRICULTURE.—We suppose the insect referred to in the following cutting from an Indian paper is the same that sucks out the juice here from tender paddy:—"Paddy cultivators in the Hanthawaddy District complain that a large proportion than usual of their paddy has been destroyed by insects. One cultivator in the Twantay subdivision, who expected to get 1,500 baskets, finds he has little over 900. In Mawun the same complaints are heard."

TEA SHIPMENTS FROM CEYLON.

THE QUARTER'S RETURNS.

The following are shipments for the first three months of the year as compared with the three previous seasons:—

	1896.	1897.	1898.
	lb.	lb.	lb.
TO UNITED KINGDOM.			
January ..	7,239,549	8,542,897	8,152,769
February ..	7,550,431	6,348,232	6,726,001
March ..	7,130,579	9,172,886	9,500,000
Total..	21,920,559	24,064,015	24,378,770
TO AUSTRALIAN COLONIES.			
January ..	775,127	956,977	1,290,955
February ..	934,018	787,916	1,031,972
March ..	1,444 466	1,279,468	1,160,000
Total..	3,153,611	3,024,361	3,482,927

The improved shipments to Australasia are satisfactory.

PATENTS.

The fees prescribed in Schedule IV of the Ordinance No 16 of 1892 have been paid for the continuance of exclusive privilege in respect of the under-mentioned inventions for the periods shown against each:—

No. 419 of 1893.—David Kinloch Michie, Engineer, St. Sebastian Mills, Colombo. Invention for partially disintegrating, equal feeding, breaking, or sizing material, more especially as applied to tea leaf, either while such leaf is in process of manufacture or after it has become dry tea (from July 25, 1897, to July 25, 1899).

No. 424 of 1893.—David Kinloch Michie, Engineer, St. Sebastian Mills, Colombo. Invention for lubricating wireshoot runners (from October 24, 1897, to October 24, 1899).

No. 432 of 1894.—William Jackson, of Thorngrove, Manorfield, Aberdeen, Scotland, Engineer. Improvements in tubular heating stoves, more especially intended for heating air for use in drying tea or other produce (from January, 9, 1898, to January 9, 1899).

No. 433 of 1894.—William Jackson, of Thorngrove, Manorfield, Aberdeen, Scotland Engineer. Improvements in apparatus for subjecting materials to the action of hot air or for analogous operations, more especially intended for use in drying tea leaves, coffee, or other produce, for one year (from January 9, 1898, to January 9, 1899).

No. 434 of 1894.—John Roger, of 20, Guildford street, London. Improvement in the manufacture of tea (from January 10, 1898, to January 10 1899).—*Gazette.*

"ALL ABOUT COCONUT PLANTING."

The Brisbane Department of Agriculture have ordered two copies of this book to be added to their reference library.

AGRICULTURAL STUDIES.—What is the Commission, which is said to have been appointed to inquire into the working of the School of Agriculture, about? In India the importance of an agricultural training, and of encouraging a knowledge of agriculture seems fully recognised. We read that "A resolution appears in the *Calcutta Gazette*, sanctioning the opening of agricultural classes at the Seebpore College, Mr. N. G. Mookerjee, now Assistant Director of the Bengal Agricultural Department, has been appointed Agricultural Lecturer. The scheme of education comprises two classes, and the Resolution states that His Honour the Lieutenant-Governor is prepared to assign certain appointments in the Provincial and Subordinate Executive Services to suitable holders of agricultural diplomas."

CARDAMOMS ; COFFEE.

SOUTH MYSORE PLANTERS' ASSOCIATION.

The annual general meeting was held in Belur on 3rd March, and from the Report, we quote :—

The scheme for the employment of an Agricultural Chemist has practically fallen through for want of support. This is the more to be regretted, as from enquiries made it appears that the project would not have involved so large an expenditure as was anticipated, and had only three or four Associations come forward with offers of help, it might have been carried through.

THE CURRENCY QUESTION.—The persistent efforts of the Government of India to bolster up the value of the rupee to nearly double its intrinsic worth is a source of great anxiety to producers. The new gold Note Bill, and the remarks of the Finance Minister, show plainly their determination to keep up the rate of exchange, and indicate the possible introduction later on of a gold standard. With regard to the U.P.A. proposed circular letter, this Association, while it agreed that it was advisable to hold consultation with the Chambers of Commerce, Banks and other Mercantile institutions, deprecated the adoption of a definite policy and recourse to any action until the views of such bodies were ascertained

Cardamoms.—The crop this season has been better than last, but prices are now lower. I have expressed our thanks to Government for settling the re-assessment question.

Labour has again been plentiful, and is, I think, likely to be so during the coming year ; the scale of advances has already been reduced, and I think a combined effort should be made to lower the rate of wages.

Leaf Disease.—Mr. J. L. Stewart spoke as follows ; "Gentlemen, I have an explanation to ask for and a few words to say about a very injudicious and pessimistic speech made by one of our delegates, Mr. Harris, at the U.P.A. Meeting last year. This speech has caused an unnecessary small panic among agents, and consequently been the cause of much trouble and annoyance to men who depend on agents for money to work their estates. I use the word unnecessary advisedly, as after nearly twenty years' experience of coffee. I can honestly say that I consider that leaf-disease is no more virulent now than it was when I first came out to this country.

Mr. Harris replied : "Gentlemen, I find it hard to believe in the sincerity of Mr. Stewart's remarks. If he considered that my speech would have such deleterious effects as he has described, why did he not at once denounce it ? instead of waiting six months when the mischief, if any, would be done.

I believe myself that by judicious manuring and careful cultivation we shall successfully contend with the ravages of leaf-disease. We have two things in our favour as compared with Ceylon, a climate subject to long droughts, and a certain isolation as regards the position of our estates. The present season bears out this opinion : leaf-disease has been present in a very mild form, and prospects may be said to be decidedly favourable."

Messrs. J. G. Hamilton and J. A. Harris were re-elected President and Honorary Secretary ; Messrs. L. Crawford, G. Horne, J. G. Hamilton, J. A. Harris and W. H. Scott were elected to form the Committee, and Messrs. Graham Anderson, E. M. Playfair and W. H. Scott as extra delegates to the U.P.A.

TO MAKE ROSELLA JAM.—Pick the red calyx from the seed-pods ; boil the latter in sufficient water to quite cover them until the jelly is extracted, and they look dry. Strain them, and weigh the liquour and the red fruit. Then boil the fruit in the liquor until it is tender. Add as much weight of sugar as there was of liquor and red fruit before the second boiling, and boil again until it becomes jelly. This is a milder jam than when the seed-pods are not used, but not so good a colour. Boil the red fruit in sufficient water to cover it. When tender weigh it. Add equal weight of fine white sugar, and boil till it sets.—*Queensland Agricultural Journal* for March.

PLANTING NOTES.

THE FINANCIAL AND TEA PROSPECT.—A merchant writes :—"There will be a very strong case against the Government sinking unprofitably millions of rupees. Producers will soon be clamouring (and justly so) for reduced railway rates, if low prices and high exchange continue. What will then become of the anticipated annual surplus revenue."

OIL ENGINES FOR ESTATES.—Mr. Wm. Forsythe has had a twenty-four brake horse-power Campbell engine at work on Pambegamma estate for about eighteen month past, and is thoroughly satisfied with its working. He tells us that the complaints as to the complicated nature of oil engine and their liability to get out of order do not apply to the Campbell engine, by which he swears as a model of simplicity. During the eighteen months the engine has consumed 3,000 gallons of oil, for which Mr. Forsythe has had to pay R750 duty—at the rate of twenty-five cents a gallon. The rebate of the duty will, he estimates make a reduction in the cost of working of about forty per cent.

THE NORTH MYSORE PLANTERS' ASSOCIATION.—We congratulate a very respected ex-Ceylon planter, Mr. E. C. Bolton, on his election as Chairman of this body, or rather we should congratulate the Association on securing so good and experienced a President. Mr. Bolton's letter to us will be read with interest by old friends in Ceylon; and we now proceed to quote from the Report of his Association and of the proceedings held on 23th February last :—

ACCOUNTS.—In spite of the fact, that one of the largest Proprietors has withdrawn his estates from the roll of the Association, the income has been sufficient to pay our expenses and leave the Reserve Fund of R1,000 intact. The number of estates now subscribing to the Association is 59. It is with deep regret that we have to record the deaths of Messrs. Brett, W. Allardice, Sen. McMaster and Lee during the year under review.

BAGGANI TODDY TREES.—The objectionable Memorandum No. 215 issued by the Excise Supervisor last October, relating to toddy drawing on Coffee estates, has, on account of the protests raised by the Association been cancelled in the Malnaad, until the end of the current official year.

AGRICULTURAL CHEMIST.—The Mysore Government through the Dewan has expressed its intention of providing an Agricultural Chemist for the Province. The matter is, at present, under the consideration of Dr. Evans, head of the Geological Department, who has kindly undertaken the difficult task of selecting a competent man.

SCALE PESTS.—Although we are not at present afflicted with the green bug, Your committee are pleased to announce that sufficient funds have been collected to send Mr. H. O. Newport of the Lower Palacess to Australia ; to bring over a consignment of lady birds, with which it is hoped that the pest may be eventually exterminated.

Mr. Parton and Mr. Leslie proposed, a vote of thanks to Mr. O. Scot Skirving for his services as President during the past year, and regretted the cause which had prevented his attendance at the Meeting. The Committee was then balloted for with the following result :—Mr. E. C. Bolton—President, Members.—Mr. F. J. Parton, Mr. C. H. Browne, Mr. F. Clifford, Mr. W. H. Maynard, Mr. H. M. Northey, Mr. H. Pilkington.

Mr. Bolton returned thanks for the unexpected honour done him and while regretting the absence of abler men to fill the position, assured the meeting that no efforts on his part would be wanting to merit the confidence placed in him.

AGRICULTURAL CHEMIST.—Read letter from Mr. Maxwell Maynard. Resolved :—"That the Honorary Secretary be requested to communicate again with the Mysore Government in the appointment of an Agricultural Chemist for the Province, urging the necessity of early action in the matter."

THE PLANTING RESOURCES OF CUBA.—Although it is three years since the standard of revolt was raised in Cuba against Spanish authority, and the plantations have suffered severely, there is sufficient evidence of the splendid resources of the island. Both the sugar and tobacco crops will be larger than last year. Some people estimate the total yield of sugar for the season as likely to be some 300,000 tons. The yield of tobacco will certainly considerably exceed last year's crop, and it is calculated at some 70,000 to 80,000 bales for the Vuelta Abajo and 120,000 or 130,000 for the rest of the island—in all about 30 per cent of an ordinary crop in times of peace.—*H. and C. Mail*, March 25.

TOBACCO.—There is a great falling-off in the export of leaf tobacco from Bangalore this year, compared with that of previous years, writes a Bangalore paper. Formerly, the octroi duty realised in one week was something like R1,800 and R2,000, but for last week it was only R120. Owing to failure of the crops in the tobacco-growing districts of the Madras Presidency, the merchants in Bangalore have to pay a high price, besides paying duty and income-tax for their goods. The stock taken from the Bonded Warehouse for sale to constituents is less than one-half to what it usually was.

THE FIRST SHIPMENT of the season's fruit was sent away from Port Melbourne on Saturday last. The consignor is an agent who deals extensively with Ceylon, and he has already sent away 150 cases of early apples for sale in that island. The examination of the fruit prior to storing on board ship is placed in the hands of Mr. C. B. Luffmann, and that gentleman finds that the samples so far have been small. As only about 10 per cent. of the cases are opened, however, this must not be taken as proof of inferiority throughout. Yet to judge from the special articles now appearing in "The Leader," it is, unfortunately, most likely that this is the case.—Melbourne *Leader*, Feb. 5.

CARDAMOM HUSKS—What is done with cardamom husks? asks the *Chemist and Druggist* of March 12th, and adds:—"Parcels appear in Mincing Lane occasionally and seldom fail to find a buyer at a penny or so per lb., but much more of them is bought on the Continent, where the husks have a distinct marketable value, and are now sent regularly there from Ceylon. In grading the cardamoms the splits are utilised for this purpose after seeding them. Formerly the husks were thrown away, but for some time back there has been a demand for them What for?" Just the same use as for cacao or cocoa husks which are sold for 2d to 4d a lb and a delicious drink made therefrom.

COFFEE IN THE STRAITS.—Writes the District Officer, Ulu Selangor, for February, 1898:—I am sorry to say that, owing to the low price of coffee, many of the Malay planters are allowing their gardens to relapse into jungle, and I have no doubt that we shall find some difficulty in getting in these rents. This is particularly the case in Rawang, where the general depression is causing much distress and the Assistant District Officer has received a petition from the "raiat" asking that Government will forego the collection of their rents. Discretion will, of course, be used in dealing with such cases. The District Officer, Kuala Selangor, for February, 1898, writes:—The Banjarese coffee on Bukit Panjang is improving. They have cleared off most of their garden crops, and the coffee planted on Bukit Cheraka last year was even better looked after, and has no pisangs and tapioca planted amongst it; I have now hopes that they will perhaps do some good here with coffee.

"TEA PLANTING IN FIJI"—is the subject of a letter from a resident planter which contains a good deal of interesting information—as to the suitableness of Fiji for the cultivation of our staple. An admirable lay of land and rich soil are great advantages; but if, through "over-production," there is the risk of tea not paying in India and Ceylon later on, how much more liable to be unprofitable in a distant Colony which looks to India for its labour supply?

THE OLIVE OIL TREATMENT OF ENTERIC.—The "Times of India" says:—It may interest Surgeon-Major Rennie, who is making encouraging experiments at Meerut to establish the curative effect of olive oil in enteric fever, to know that the oil in question is in many parts of Spanish America considered the only remedy of much use in yellow fever. The usual practice is to make at patient drink half-a-pint of olive oil—not always an easy thing to do—and then send for a doctor, who, if he is well advised, repeats the dose. The remedy, real or supposed, is well known to the captains of merchant vessels trading with Havana the Brazils, and Pernambuco. They prescribe it for sailors under their charge who may be attacked by that deadly form of fever.

FINE TEAS AT LAST PUBLIC SALE.—The amount of fine teas offered at public sale was not so large as was the case a few days before, but one or two invoices of excellent tea were nevertheless offered The following prices were realized for some of the flavory teas:—

Pedro.			cts.	Agraouvah.			cts
47 hf-chs	B. O. P.		87	53 hf-chs	B. O. P.		66
18 chs	P.		72	21 hf-chs	O. P.		55
22 chs	P. S.		53 bid	7 chs			
21 hf-chs	F.		38				

Glasgow.

42 chs	B. O. P.	60 cts.
14 chs	O. P.	67 ,,
12 chs	P.	47 ,,

These teas were again, we understand, mostly bought for shipment to Russia, and, looking to the high rate of exchange, and the terribly bad prices brought out by the last mail from home, the advantages of the Colombo market for sellers are becoming increasingly evident.

THE CAMBRIDGE EXPEDITION TO TORRES STRAITS.—Yesterday (says the London *Times* of March 11th) an expedition of peculiar interest left England. Travelling scholars are often enough sent out both by Oxford and Cambridge; but this is probably the first time that a real exploring expedition has been sent out by either University. The expedition is under the command of Dr. A. Haddon, Professor of Zoology in the Royal College of Science, Dublin, and Lecturer on Anthropology at Cambridge University. The expedition is bound first for Torres Straits, between Australia and New Guinea, and afterwards to the province of Barram, in Central Borneo, in the territory ruled over by the Rajah of Sarawak. The chief object of the expedition will be to investigate the natives, their physical characteristics, their mental condition, their folklore, their customs, their amusements, their songs, their language, and their condition generally, as affected by their geographical environment. A phonograph will from an important part of the equipment of the expedition for the record of language and of native music. By means of a cinematograph, dances and other native ceremonies will be fixed for reproduction at home. The expedition will be away from England for 15 months.

PLANTING IN SUMATRA.

I have just had a visit from a friend returning from a meeting of the Serdang Coffee Planters' Association. "A fine meeting," he said :—

"TWENTY ESTATES REPRESENTED."

And so it was, considering that three years ago there were only four coffee estates representing less than 1,000 acres under cultivation : and today there 24 estates, the smallest of which is over 120 acres, and the largest over 1,500 acres, and extension is the order of the day notwithstanding the slump in the market. I put into my friend's hands the *Ceylon Observer* with account of the Planters' Association meeting in Kandy on 17th Feb. and told him that the Ceylon Planters' Association mustered close on 1,000 strong. "What ! all present at the meeting?" "*Certainly.*" I said : for I quite agree with Harry Warrington ; that one must lie now and again "for the honor of the old country !" "Oh, but all assistants and so forth go to swell the number:" "Nay," I replied : "only estates, firms or companies are represented." "But do you mean to tell me that there are 1,000 estates in Ceylon ?"

FERGUSON'S DIRECTORY WAS HANDY

and I was able to show him on page 22, of the Directory of 1896-97—1,529 estates : 1470 managers. "By Jove ! fellows here don't know that !" This I was aware of before. You good folks in Ceylon think a deuce of a lot of yourselves. And quite right too. It pleases you and it hurts nobody else. But outsiders have the most fractional idea of the limits of your tight little island.

IDEAS OF CEYLON.

Some time ago we had a visitor here from Nuwara Eliya, who, during his short stay among us, made himself very popular. A gentleman on his way home said to me "I must go and look up——in Nuwara Eliya ; how do I get there ?" Upon my giving him directions he threw up his hands and said "Why, I thought you could take a gharry and drive round the whole of Ceylon in two hours !"

From a Singapore paper it appears that the Selangor planters have gone into public mourning over the

FALL IN THE PRICE OF COFFEE

and their own ignorance of curing ! This is a pity : and it does not look as if the Selangor men had the grit of their forbears in Ceylon who tackled and struggled through a much more serious crisis than Liberian coffee has yet had to face.

As regards Liberian coffee there are two questions. The curing question has been fully recognised: but few have satisfactorily overcome it. Mark this—well cured Liberian coffee will always fetch its price. One estate that I know fetched a fancy price in Europe two years ago : and has always been able to dispose of its produce at

A FAIR MARKET PRICE.

Another estate shipped a large parcel just before the recent collapse of the market, sold in Europe at public auction it *netted*—when the market was at smash—$29 per picul. Singapore quotation at same date being $19—and the shippers were told that they could always get an equal price for such a sample.

So much for Curing.

The other question is prejudice.

All in Ceylon except the podians remember the

PREJUDICE AGAINST CEYLON TEA.

First they said in London that Brokers and Merchants would not waste their time on "Samples." When the samples increased in size, the *quality* was found fault with. It was trash : it was rank ; it was sour ; nothing was bad enough for it. And simply because they didn't know what was given them and treated Indian and Ceylon *Tea* just as they had treated Chinese *chopped straw* for the previous half-century. As a youngster I remember presents of Assam Tea being sent home from India. "Awfully good of dear old Charlie, you know : but ahem, ahem, &c." "Beastly," was whispered : and the tea was relegated to the kitchen.

And so it is with

LIBERIAN COFFEE.

It is called nasty, rank, oily stuff. And so it is, if it is not treated properly. In the first place, as a rule, it is not sufficiently dried. It needs far more drying than Coffee Arabica. This refers especially to coffee for the breakfast table, as distinct from coffee for the market. Then it is frequently drunk too new. It wants a lot of keeping. And finally the roasting must be done slowly and very thoroughly. If these points are well borne in mind, Liberian coffee will give as fragrant a cup as any other : and the quantity will go further. In short, point for point, and step for step, it has to fight the same battle that British-grown teas had to fight a quarter of a century ago.

NO MENTION OF COFFEE !

The forty-fourth Annual Report of the Ceylon Planters' Association should rank as an eighth wonder of the world. *There is no mention of coffee in it.* OLD HAND.

PIONEERS OF CEYLON: THE MESSRS. HADDEN.

We stand corrected in some of the particulars given in our notice, respecting the younger generation. We stated that Messrs. Frederick and Frank Hadden, soon after their father's death became sole proprietors of the Hunasgeria estates. As a matter of fact they inherited their father's half-share in Kotiyagalla and the Hunasgeria estates, and it was not till some years later, that they sold their half-share in Kotiyagalla to Mr. Chas. S. Hadden and bought his share in the Hunasgeria estates, in which properties Mr. Frederick Hadden was interested till January 1st 1898, when he sold his share in Weygalla, as also did his brother, to Mr. Beilby. On the same date, Mr. Fredrick Hadden sold his share of Hunagalla, Horagalla and Halgalla to his brother. We were wrong in describing Mr. Frederick Hadden as Mr. Charles S. Hadden's nephew ; he is his cousin or cousin one remove.

BLACK ANTS.

A lady residing in a dry, lowcountry district, writes :—

"Could any of the readers of the *Observer* kindly inform me how to destroy or prevent the inroads of big black ants ? Nothing seems to escape them here:—piano, bookcases, table, drawers, flower pots, &c., and I would be thankful to know of some good remedy."

We trust some one or other of the following hints will be useful to our Correspondent : —

How to Prevent Ants from Attacking Sugar.—Some of your lady readers will no doubt be glad of this hint, the utility of which I can testify to, and

which I discovered by mere accident. Put your sugar (I mean the small quantities required for daily use) into bottles or other narrow-mouthed vessels, and use a *common lime well squeezed in for a stopper* and ants will never trouble it.—*Demerara Gazette.*

TO PREVENT ANTS FROM GETTING ON WASH-STANDS AND DRESSING-TABLES, &c.—Rub chalk round the legs of these a little up from the floor, till the wood is quite covered with it, and the ants cannot walk over the chalk. It must be renewed every week or so. Another plan to prevent ants getting on the table, teapoy, bed, &c., is to tie round the lower end of the leg or post a thin slip of flannel dipped in castor oil—they will not pass over this; or place the leg in pans of water. To secure boxes from their depredations, the best plan is to place them on glass bottles laid lengthways, and if kept free from dust, the ants cannot ascend. They have a great dislike to indigo, and will seldom touch cloth dyed in it or saturated in a solution of corrosive sublimate; the proportion of one pound to four gallons of water is sufficient. They also dislike salt, which may be mixed up with the mud or gober that is sometimes spread over the floor or wall; though this is not an effectual remedy, it is as well occasionally to adopt it.

TO DESTROY RED OR BLACK ANTS.—After having discovered the aperture of their nests, surround it with soft clay formed into the shape of a funnel, and pour in boiling water. Where they are in the habit of infesting a floor or room, lay down thin slices of raw meat or liver, upon which the ants will soon congregate; let a person go about with hot water in a basin, and throw in the meat as it is covered; then shake it dry, and put it down again to collect more.

A RECIPE FOR THE DESTRUCTION OF INSECTS, which, says the *Builder*, if it be one-half as efficacious as it is stated to be, will prove invaluable, and especially we may add in tropical countries, is published by the *Journal of Chemistry*. Hot Alum Water is the suggestion as an Insecticide. It will destroy red and black ants, cockroaches, spiders, chintz bugs, and all the crawling pests which infest our houses. "Take 2 lb. of alum and dissolve it in three or four quarts of boiling water, let it stand on the fire till the alum disappears, apply it with a brush, while nearly boiling hot, to every joint and crevice in your closets, bedsteads, pantry shelves, and the like. Brush the crevices in the floor of the skirting or mop boards, if you suspect that they harbour vermin. If, in whitewashing a ceiling, plenty of alum is added to the line, it will also serve to keep insects at a distance. Cockroaches will flee the paint which has been washed in cool alum water."

TO DESTROY INSECTS IN FLOWER-POTS, GRUB, &c.—A plant grower of considerable experience tells us that a strong solution of copperas in soapsuds water is very invigorating to ornamental shrubs and pear trees. It will also destroy the small grubs that infest the roots of pot-plants. Ammonia water, of the strength of one teaspoonful of spirits of ammonia to two quarters of water, is also a good remedy for the white grubs in pot plants, while it is very invigorating to the growth of the plants.

"THE CREEPING OF CHUFFLES" AND OTHER STORIES BY OSD. SLADE.

A copy of this brochure—very neatly turned out in paper cover from the local "Times" press—reached us today with the compliments of the author. His purpose in the chief story which gives its name to the volume is to illustrate "in narrative form, the kind of life which young men, coming out to learn Tea Planting, are so often unprepared for. But there, the purpose, if it has one, ends: and it is hoped that these 'yarns' concerning various phases of life and incident to be found in Ceylon, may be as interesting to those who live among them, and to those who so imperfectly visit them, as to those whose business or pleasure do not bring them so far East." From the glance we have given over the "Creeping of Chuffles" we think Mr. Slade has succeeded very well in his aim, while in his autobiography as well as in the succeeding stories he touches on phases of estate, village and native (Sinhalese as well as Tamil) life in a way that makes his pages both interesting and amusing to the general reader. The contents of the little book give a good idea of the treatment of his principal subject:—

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Again, the preface indicates the humour of the writer and his style otherwise, very fairly:—

PREFATORY FABLE.

To those of my country-men and women—and there must be many—whom the title of this little volume may tend to mystify, a word in season.

'Creeping!' What does 'creeping' mean?—And thereby hangs a tale.

There was once a Ceylon Planter who took upon himself to teach a certain young man from England the profession of tea-planting. Whether the work, or the life, or both, suited this young 'blade' or not, I do not know—possibly not. But history relates that the planter's lady, seeing one day the new arrival lounging lazily along some estate road, exclaimed of him:—"There is that youth again, creeping—creeping along as if, &c., &c.,—"—So many young men have come out to Ceylon (in particular) to learn nothing, or merely for the 'fun of the thing,' or because their parents dubbed them 'fit for nothing else,' or because the old country was 'too hot to hold 'em!' Everyone knew instances of the kind, and few of these ever did any work; although their parents had paid a premium (often a heavy one) for the privilege of inflicting the Colony with their 'ne'er-doweels.' They should henceforth be called 'creepers.'—Time alters all things.

Nowadays the name 'creeper' implies 'a young man being taught planting,' and is a term almost exclusively applied to those who 'learn, and do not earn.'

The truth of this story I will not vouch for: let it stand for a simple explanation of an ambiguous term. AUTHOR. Kegalle, Ceylon, 1898.

INDIAN TEA IN FRANCE.

TO THE EDITOR.

SIR,—I have read with considerable interest your article upon this subject, and, as a resident for many years in France, should like to state my experience in this connection. Although I have no statistics in my possession, I can assure you that tea is now by no means a strange commodity in Paris, nor at the many places in the south of France, where English-speaking people most do resort. Indeed, comparatively large quantities are now landed at and distributed from Marseilles, almost every week; and the quality is all that can be desired, though prices are exorbitant. After making sure that the tea shall be sold at a moderate profit, the great difficulty is to educate the French servant how to brew it properly, and this is no small trouble even amongst

English servants. In going about the Continent we adopted the general custom of drinking the red wine at meals, but we like to have a cup of tea during the afternoon, and generally got it; but then we took care to have a small canister handy, and my wife brewed it herself. I remember that at two places we ran short, at Toulon and at the university city of Montpelier, and at those places —I am speaking of seven or eight years ago—we managed to get very small quantities at chemists' shops, sold as a drug, and exposed in the window in glass jars with loose lids. There are at Paris a few shops selling tea and coffee as specialities, and tea can be obtained at a limited number of establishments (tea rooms) at from 25 centimes to 40 centimes a cup; these are principally patronised by ladies out shopping, but, except in aristocratic or wealthy families, it is rare to find a tea-caddy in use. If you speak upon the subject, the lady will probably tell you that your tea is certainly delicious, but, with a shrug, add: "You know we cannot get our servants to make it like this." So that the mere exhibition of tea, or the giving or selling of cups of the beverage, is quite insufficient if the object be to bring it into general practical use. Then, again, even to English people, wine is so much handier, not requiring any manipulation beyond the water bottle, and very decent wine can be had at the equivalent of about Re 1 per gallon. As to prices, good tea is obtainable in France at from 12 francs to 20 francs per kilo, and it must be borne in mind that the French customs duty is 208 francs per hundred kilos when imported direct from the producing country, and 268 francs per hundred kilos when received from European entrepots; but even then first-class teas should be saleable at 8 francs per kilo, of, roughly, 2 lb. It will take a long time to create a large demand for tea, unless the servant is *educated*, and that can only be done by practical demonstration; and it is not many shop-keepers (or tea-dealers) who will take this trouble. It ought to be a special business in the hands of interested promoters to be even moderately successful. I remember at Montpelier our landlady had a sick headache, and would take some tea as a *tissue*. Being curious as to her methods of making tea, I watched the process, and to my astonishment I saw her take a pinch between two fingers from a small box, holding, perhaps, half an ounce, deliberately put this into cold water in a very small saucepan without a lid to it, and she did not even trust this operation to her domestic. This may possibly be an exaggerated case, but it is typical of tea-making in France. You make a point of sending free samples to hotels. Most hotels keep tea. I know one that takes 200 to 300 lb. at a time, but they do not know how to brew it into anything like a satisfactory beverage, and it is a delicate matter to tell them so. I should not mind having a hand in this educational process, but it will require lots of tact to get the mistress to send the domestic—even when the latter is willing—to take a practical lesson in brewing tea. Opening shops in thickly populated centres for the sale of tea should be a self-supporting and paying venture, and the first outlay in establishment charges, stocks, and judicious advertisement, ought not to be a ruinous matter, for much larger profits are possible in France than is the case in England. I doubt the necessity of sending out Indian servants even to the proposed Exhibition: a couple, for effect, might perhaps be useful, but I consider the expense unnecessary, as there are plenty of English girls, a grade or two above the servant class, quite able and willing to make tea properly, or to learn how to do so. I trust this letter may be of service in a practical sense. W. S. —*Indian Agriculturist*, April 1.

THE OLDEST PARA RUBBER TREES in the Kalutara district are on the Culloden estate, planted we believe by Mr. R. Morison so far back as 1883. Three trees dating from that year are described as giants, and the seed from them ought to be specially valuable.

TEA IN THE KANGRA VALLEY.

REDUCTION IN RAILWAY RATES ASKED FOR.

The Kangra Tea Association is young; and, being young it has evinced its vigour by approaching the Financial Commissioner of the Punjab with a deputation which submitted a statement of the requirements of the tea industry in that salubrious valley. "The tea industry of the Kangra Valley has fallen into such a critical state," said the memorandum, "that unless some amelioration takes place in its circumstances, ruin must speedily follow." This was certainly not a cheerful view of the situation; but the Association was apparently justified in lamenting over the departed glory of the valley. Thus, it was stated that "green tea is manufactured almost exclusively by natives, and black tea by Europeans. The present market value of green tea, which used to sell at a rupee per pound twenty years ago, is two annas per pound at Palampur. Black tea, which twenty years ago was fetching a rupee per pound in Calcutta, now obtains with difficulty an average of about five annas per pound and deducting the cost of freight, sale charges, and packing in lead, this represents about 3¾ annas per pound at Palampur. The lowest cost of production is 3 annas per pound for green tea, and 4 annas per pound for black." The memorandum then quoted figures in support of this, taken from the working of one of the tea estates, to show that it here, at any rate, realised a profit of only 3 per cent in two years. So much for tea gardens under European management.

On the other hand, gardens under native management, which manufacture only green tea, suffered equal loss; and the most curious feature of the memorandum presented by the Association is, that attention was drawn to an injustice perpetrated against the native growers. It was pointed out that while European planters paid only twelve annas per acre as Government revenue for their holdings, native planters were assessed at one rupee per *ghumao*, which was only one-fourth of an acre, and that the loss sustained on working by these native planters varied from R10 to 15 per *ghumao*. "This," said the Association, "presents a positive injustice in the incidence of land taxation, and to it this deputation desires to draw your attention." It seems to us that the European planters can scarcely complain if their tea holdings are assessed at rates more favourable than those of the native planters. But apparently the European and native planters have joined issues—hence this united action. Indeed, the deputation seems to have held a brief for the native tea planters. What the deputation was really leading up to, comes out at the end of the memorandum, for what they wished to press was "the desirability (in the interests of the industry started by Government) of suspending all, or a portion of, the land revenue on tea lands during its present life-and-death stuggle for existence;" that should an improvement take place, taxation could be reverted to. A reduction in the rates charged for the carriage of tea on State Railways in the Punjab was also asked for. Summed up, the prayer of the deputation was not for any particular concession to the European tea planter, but to the native; and the reason for this is found in the statement that an attempt was being made to find new markets for green tea in Central Assia. No doubt the tea industry in the Kangra Valley suffers from an absence of proper roads and facilities for placing it on the market, and this will doubtless receive the attention of the authorities. It may interest some of our readers to peruse the letter which we reproduce elsewhere from a correspondent of the Allahabad paper on this subject.—*Indian Planters' Gazette*, April 2.

RUBBER.—As information has been received from the Collectors of various districts in the Protectorate that Rubber is procurable, and as it is, of course, very desirable to encourage and develop such a valuable industry, H. M. Acting Commissioner desires that Collectors will do all they can to foster this industry, by informing natives that they may pay their Hut Taxes in India Rubber, reckoning it at a value of 9d per lb. the price quoted by the Zomba Agent of the African Lakes Corporation, Limited.

INDIAN TEA: EXPORTS FOR 1897-8.

CLOSE OF THE SEASON: INCREASE OVER 1896-7 ONLY 1½ MILLION LB.

Messrs. W. Moran & Co.'s Calcutta Circular of 7th April gives us the total exports for the past season and previous two seasons as follows:—

Total quantity of Tea passed through Calcutta from 1st April to end of Season:

	1897-98.	1896 97.	1895-96.
Great Britain ..	133,782,962	132,599,882	121,174,380
Foreign Europe ..	797,313	439,800	276,333
America ..	2,086,369	1,937,799	1,086,419
Asia	3,601,532	4,415,342	5,135,727
Australia ..	6,802,579	6,171,380	6,845,327
	147,070,755	145,564,203	134,518,186

It will be observed that the increase last year over 1896-7 is only 1,506,552 lb. As regards the coming season, the circular before us has the following:—

Shortly after the date of our last, rain was reported from *Cachar*, but not in sufficient quantities to be of much service. By letter we hear that rain is again badly wanted, but by telegram we are informed that slight showers have fallen near *Silchar*. In parts of *Assam* there has been good rain, also in the *Dooars*, but in this latter district accompanied in some instances with hail which has done some damage. A few gardens in the *Terai* and some in *Dooars* are well ahead of last year in manufacture but on the whole, the season is not likely to be early.

PLANTING NOTES.

FINE COFFEE BLOSSOMS are reported from Uva—one planter writes that he wishes now he "had 1,000 acres of the old King'! The great question in Uva seems to be how to get cheaper rice for the coolies and cheaper transport for tea—every fraction per lb. being now a consideration in striving for a profit.

THE "TROPICAL AGRICULTURIST."—Major A. J. Boyd, writing from Brisbane on March 22, says:—"Since taking possession of the Editorial chair of the *Queensland Agricultural Journal* in May last year, I have had the greatest difficulty in obtaining your most valuable and interesting Magazine. I consider it one of the best, if not really the best of Tropical Agricultural publications and I derive a vast fund of information from it. I find that other officers of the department hold the same opinion."

WEST NYASA.—Mr. C. A. Cardew reports that Mr. A. Estermann, and Mr. A. Watkinson, are making rapid progress on their new plantations at Kawia, ten miles south of Bandawe. They are very Confident of the suitability of the land for coffee culture. Mr. Estermann has 600,000 pits ready, and these will be all planted during February. Mr Estermann has also gone in for rubber cultivation, and has collected some 2,000 lb in the last two months. He is confident that rubber culture will prove a paying industry. It costs about 4d per lb to collect, and the creeper from which the rubber is obtained is plentiful in the district. If a specimen of this rubber and the creeper are sent to this office they will be submitted to the Scientific Department in the first instance for the purpose of comparison with the rubber vine at Chikala, and afterwards for the opinion of an expert at home in regard to quality and actual value. Plumbago is to be obtained in abundance from the vicinity of the Bua River. A specimen of plumbago was recently sent home for inspection.

CHIKALA.—Mr. George Hoare is making an exhaustive census of the Chikala sub-district. He reports that rubber is plentiful at Chikala, of the same kind as the Mangoche rubber. The sample sent in is much whiter than that usually obtained from the landolphia creeper. I have sent a specimen of it to an American expert for a report on its value, and some hints on the best method of obtaining it, as well as suggestions for the proper cultivation of the vine itself. The result will be published in a future number of the Gazette.

THE COFFEE MARKET AND BRAZIL CROPS are thus discussed by Messrs. I. A. Rucker and Bencraft's on March 24th:—

Today, for the first time, we can talk of 9,000,000 bags (Brazils) receipts as an accomplished fact, and it only remains to be seen how far we eventually exceed 10,000,000 bags for the whole season. We have therefore entered, as it were, an unexplored country, and we can only hope that extremely low retail prices may become current in Europe, and that increasing consumption may successfully grapple with these enormous crops. The receipts are very heavy at the moment, 42,000 bags on Tuesday upsetting many expert calculations, and values on term and the Brazils are lower. We hear little or nothing about next crops, but it seems to be accepted that they are smaller than current ones. The spot market is lower. The fancy values current at the commencement of the season, in a majority of cases having disappeared. We may go lower, but it has to be remembered that the Java colory crops are very short, and colory coffees will be scarce in the late autumn.

MR. GEO. CHRISTISON, the well-known Darjeeling planter, whom, writes *Planting Opinion*, we unfortunately missed during his short stay in Coonoor, gives his opinion thusly on Nilgiri tea: "I like your district in many ways. Your soil generally is very good and your tea *looks* healthy and well. Of course without being with you all the year round, I cannot form any very reliable opinion . . . . As you must know your tea has not been in good favour in the London market. This may, I think, be remedied in some measure." We quite agree with Mr. Christison. The capabilities of the Nilgiris are shown in the success of perhaps only two or three gardens at most. The soil is good, the climate very good, but the jat is—mostly—vile. Until a fuller appreciation is shown of the virtues of a better jat of tea than is now commonly grown on the Nilgiris, and until the present style of three acres and a factory are given up the prospects of the Blue Mountains as a modern tea district, will remain ultramarine.

A CEYLON PLANTER ON OUR COFFEE INDUSTRY.—We had a desultory talk with Mr. Trubridge shortly after his arrival in Blantyre in which, although it was not a formal interview he gave his opinions very freely as to the Coffee Industry of B.C.A. He had just come straight out from London and his object was to see and report upon the suitability of B. C. A. as a field for the investment of capital in coffee and he would probably make a six months' stay in the country. Coming to the subject of coffee, Mr. Trubridge stated that he had seen some five plantations and as regards fertility of soil, plant growth, climate, rainfall, etc., he thought this was an ideal country for coffee. He was, however, very much disgusted to see how the weeds were allowed to grow up in many gardens and stated that weeds were a prolific cause of light berry. A special point to which he had directed attention was the presence of disease in the coffee. He said he had looked minutely for any trace of leaf disease, and (our Indian friends please note) had not so far seen a single speck of it. Mr. Trubridge has formed a most favourable idea of the capabilities of B. C. A. as a coffee growing country judging from the little which he has seen.—*Central Africa Gazette*, Feb. 26

PRODUCE AND PLANTING.

REGULATION OF SALES.—At a Committee meeting of the Indian Tea Association held on Tuesday, approval was given to the following notice, which has been issued to the trade by the Tea Brokers' Association of London, with reference to public auctions of Indian tea: "For the better regulation of sales, Indian tea importers have agreed to adopt the following rules: 1. That Indian tea sales be held on Mondays and Thursdays during eight months of the year, and on Mondays only from the first Monday in April until the last Monday in July. 2. That the quantity limit for Mondays be from 25,000 to 30,000 packages regulated so as not to require the sale to be continued later than 4 p.m. 3. Any surplus unsold from Monday's sale shall be offered on Wednesdays, no catalogue to be printed for Wednesday. 4. Small breaks appertaining to the tea offered to be sold at the close of each day's sale.

TEA CULTIVATION IN THE SOUTHERN STATES OF N. AMERICA.—The sale of Indian and Ceylon teas in the United States is not likely to suffer on account of the development of home-grown tea, for at present the experiment does not meet with any marked success. The British Consul at Charleston states that an experimental tea farm is conducted by Dr. Charles U. Shepard, at Pinehurst, Summerville, South Carolina, twenty-two miles from Charleston, under the auspices of the United States Government. The results appear to show that although it is possible, under such careful cultivation as Dr. Shepard has given to the plants under his charge, to produce in that climate a fairly good quality of tea so far as appearances go, no serious competition with imported teas is likely to arise. The product of the South Carolina farm has been sold for two or three years for 1 dol. per lb. (equal to about 4s), but the beverage made from this article had a yellowish, muddy colour, and a weedy taste in comparison with the ordinary grades of Chinese and Ceylon teas sold in the market.

PLANTING OPERATIONS IN EAST AFRICA.—In 1891 an Indian planter, Mr. W. W. Fitzgerald, was engaged by the British East Africa Company to establish experimental plantations on the coast lands, and to examine the soil of the great unexplored tract that lies between Lamu and Port Durnford. Mr. Fitzgerald has just issued a book entitled "Travels in British East Africa, Zanzibar, and Pemba," in which there is an account of his labours. The Arabs had already established plantations in the neighbourhood of Melindi, but with the abolition of slavery, large tracts of land were falling out of cultivation for want of labour. There were, however, settlements of runaway slaves who were induced to engage as plantation hands by the novelty of a promise of wages, and Mr. Fitzgerald, with that rare combination of tact and kindliness which was conspicuous throughout his dealings with the natives, had a strong and loyal body of labourers at work upon the land within a few months of his arrival. While his crops were ripening he scoured the country in search of other promising fields, with his eyes always fixed upon the main object of his expeditions. Mr. Fitzgerald takes a cheerful view of agricultural prospects. In the Sabaki Valley he found a soil in which cotton, tobacco, sugar, fibre plant and coconuts, flourish with equal luxuriance, which can be tilled with a light bullock-plough, and is never subject to the long droughts of the Indian plains. But the planter has to contend with his old enemy—the dearth of labour. Mr. Fitzgerald would apply the old panacea—the importation of Indian coolies, but he does not say how the Indian Government is to be induced to waive restrictions and safeguards that are greater than any Protectorate is in a position to give, or how, with a minimum wage of shilling a day added to the cost of introduction, housing, and hospital, the East African planter is to compete with the Indian. With the exception of rubber, British East Africa does not produce anything that cannot be grown in tropical countries where the labour difficulties are less acute, and what has failed to pay in them scarcely likely to prosper in a colony where the conditions are less favourable.—*H. & C. Mail*, April 1.

CURIO—AND CEYLON TEA.

LONDON, April 1st.

Messrs. J. & M. L. Tregaskis, the well known antiquarian booksellers of High Holborn had lately a carved coconut for sale, described as follows:

1950 Coconut Flask, carved, with stopper, 7in high, 10/6

On one side a lady with a bottle, parting with a soldier holding a glass, beside a ship; on the other, an elephant with rajah in howdah and other figures, royal crown and Ceylon. Also the verse:

"The mother of me is a coconut tree,
Her liquor is excellent sound:
Arrack and toddy proceed from her body,
So drink and be merry all round."

ADVICE TO CEYLON TEA PLANTERS.

There are many complaints by tea buyers that CEYLON TEAS are not leafy and whole, but are too much broken. Lately a London firm sent a crack orange pekoe to the Continent and heard that the purchasers had to sieve out the dust before it would sell. A small, well-twisted leaf, free from all dust, is the tea to sell at present. Far too much "broken pekoe" is shipped, buyers here are no fools, and know that when 75 per cent "Broken Pekoe" is shipped, it is only a name. Above all, make planters burn the "Red Leaf" and other trash too often shipped, and which is only fit to be condemned by H. M. Customs. It gives a bad name to all Ceylon tea and does not pay. If planters would agree to pluck finer and reduce the yield by 20,000,000 lb. they would not have to cry out about prices. A few years ago Oolongs were occasionally shipped. If carefully made, and in very small quantity, these would pay, but the demand is limited.

COFFEE IN BRITISH GUIANA.

Land of Canaan, D. R., 22nd Sept. 1897.

S. Bellairs, Esq., Hony. Secretary,
Agricultural Committee, Georgetown.

Dear Sir,—To procure a good sample of Liberian coffee, sweating is absolutely is necessaray. The berries must be fully ripe before they are taken from the trees. If the weather is wet, the berries as they are taken from the trees, may be made up in heaps in some shaded part of the field. Each heap should not be less than three feet high by five feet wide. The berries so heaped should be covered with plantain leaves and allowed to remain from four to five weeks, by which time the pulp should be black and soft, and the sweating is then completed. The pulp should be washed off and the berries dried and prepared for use. If the weather is dry, the berries should be taken from the field and placed under cover and the heaps watered and covered with plantain leaves. The heaps should be watered every second day, with a watering pot, the same as used for garden work; heavy watering will injure the sample of the berries. After fermentation has fully commenced, the watering should be stopped but the berries must be kept covered until the sweating is completed. I will send for the inspection of your committee the following samples:—

Berries as taken from the trees.
Berries with the sweating completed.
Berries washed after sweating.
Berries dried and prepared for use.

Hoping the above will furnish the information pesired,—I am, &c., (Signed) C. ROSS.

The Secretary read the following letter and enclosure from Dr. Morris:—

Kew, 29th October, 1897.

Dear Harrison,—I am in receipt of your letter of the 28th September, respecting the samples of coffee sent from British Guiana. The latter were duly received and I was greatly interested in looking over them. There is no doubt coffee can be grown in British Guiana. That was evident from the samples. But it was equally evident that the preparation of the produce is in a very crude and primitive state. In order to obtain a commercial opinion upon the various sorts of coffee, I selected two of the best of the Arabian and Liberian samples and forwarded them to Messrs. Lewis and Peat, the well-known Produce Brokers in Mincing Lane. I enclose their report. Considering the great fall in prices recently, this is a very promising statement. It is admitted that the coffee itself is good, but it has been so badly prepared that it has lost nearly one-half its value. You will notice that if the coffee had been properly prepared the market value would have been from 60s to 80s per cwt.

The suggestion in regard to shipping coffee to this country in parchment is one that should receive serious attention. You will find plenty of information on the subject in the Kew *Bulletin*. See June, 1893 page 128. I enclose one on Liberian coffee herewith. When parchment coffee* is cleaned in London, it costs only about 2s 6d per cwt. This is much less than the cost of clearing by hand and the product is of much greater value. Liberian coffee is not so readily cleaned; but it can be done. It would be of great service to those engaged in coffee growing to let this be widely known.

All that really need be done in the colony is to pulp the coffee. This is a simple process and several good machines are available to be worked by hand or by power. Particulars of suitable machines as used in Jamaica could be obtained from Fawcett

The suggestion made byMessrs. Lewis and Peat in regard to cacao is an important one. Cacao was very depressed not long ago, but it has apparently picked up again. There is always an ebb and flow in the price of colonial produce, but there is one matter always to be borne in mind and that is, a really good commodity well prepared and skilfully presented will always stand a better chance than an inferior one. I am glad to hear rice is being taken so vigorously.—With kind wishes &c., D. MORRIS.

Professor Harrison, F.C.S., F.I.C.

Messrs. Lewis & Peat to Royal Gardens, Kew,
6, Mincing Lane, London, E.C., Oct. 26, 1897.

Dear Sir,—We duly received your favour of the 23rd instant, with samples of coffee from British Guiana, which we have carefully examined, and beg to report upon same as follows:—

Arabian.—No. 1 Canal, small, broken, and very mixed in colour, some green and some foxy, apparently grown from East India seed and badly prepared, value about 38s to 40s per cwt. West Bank, ditto, peaberry, value about 55s to 60s.

Liberian.—West Bank, mixed in size and very poor in colour, value about 38s per cwt. Essequibo River, good, bold, clean, and well prepared, value about 45s per cwt. In reference to the Arabian samples, it is quite evident that they have not been prepared in the right way. The coffee is a good deal damaged and broken in cleaning and of all colours. We would suggest sending home small parcels, well cured and dried in *parchment* that can be cleared here, taking great care that berries which have fallen on the ground and thereby spoiled are not mixed with the good berries. We should probably get a much better result.

Coffee, such as samples now before us, owing to the very low prices now ruling for Santos and Rio descriptions from Brazil, cannot possibly pay, but might eventually do so if cured and cleaned properly, in other words, good and fine coffees may keep up in value, and good ordinary sorts remain very low. Our opinion is that if a well cured sample could be produced it would bring 20s to 30s per cwt more, say 60s to 80s. At present there is no chance of Liberian going up, there is too much Brazil.

Have your friends thought of cultivating cocoa? We should recommend this if the ground is suitable. Present prices range from 65s to 75s per cwt and the prospects are good, whereas except for fine coffees the outlook is not bright.—We are, etc.,

(Signed) LEWIS & PEAT.

On the motion of Mr Messer, a vote of thanks was accorded to Dr. Morris for the trouble he had taken in the matter, the Secretary being directed to convey the same.—*Timehri.*

* I send a sample of parchment coffee in a separate packet by this mail.

COFFEE.

The year is notable for a heavy decline in prices, due to an enormous increase in the crops of the world, only partially offset by an increase in the deliveries, which are reckoned as consumption. The latter shows an increase of over 7 per cent over 1896. The decline in prices has been most marked in Brazil sorts and lower grades of mild coffee. The average yearly cost of No. 7 Rio, in 1897, was 7·73 cents against 15 cents in 1896, a drop of 48½ per cent.

On January 1st 1897, the world's visible supply was 4,024,968 bags, since increased to about 6,500,000 bags, notwithstanding the gain noted in consumption. We have recently so fully outlined the position of coffee, and noted each month in detail the movement, that a further review at this time would be a needless repetition. The outlook is for a period of heavy supplies and low prices for at least two years to come. The aggregate of the world's crop is over 2,500,000 bags above present annual requirements.—*Hawaiian Planters' Monthly*, Feb. 1898.

MARKET FOR MINOR PRODUCTS.

March 26.

Oil Citronella, is quiet at 1s 1½d per lb. on the spot. 308,402 lb. were shipped from Ceylon from January 1 to March 1, of which 199,592 lb. went direct to America and 102,788 to the United Kingdom.

Oil Eucalyptus, is in good demand and firmer, 1s 10d to 1s 11d per lb. is the price for good brands, and up to 2s 3d for special brands, such as "Platypus." There has recently been inquiry for oil containing about 50 per cent of eucalyptol, in view of the requirements of the new British Pharmacopœia. —*Chemist and Druggist*, March 26.

OIL OF LEMONGRASS.

Adulteration of this oil continues. Referring to the article by Mr. J. C. Umney in the *Chemist and Druggist* of December 18, 1897, a German firm of distillers confirm the observations therein recorded, and state that three kinds of oil may be met with in the market—(*a*) natural lemongrass oil, sp. gr. 0·9041, optical rotation—3 18°, and solubility in 70-per-cent. alcohol 1 in 3; (*b*) oil deprived of citral, sp. gr. 0·9102, which is insoluble in 70-per-cent. alcohol, and, being heavier than that solvent, sinks in it; (*c*) lemongrass oil adulterated with oil of lemon, sp. gr. 0·8886, optical rotation + 18 20°, insoluble in and swims upon 70-per-cent alcohol. We also learn that *Andropogon citratus D.C.*, the plant from which lemongrass oil is distilled, is now grown at St. Thomas in Portuguese West Africa, and the oil distilled from it agrees in physical characteristics with East Indian oil, but it is optically inactive. In our report of March 5 we mentioned the importation by Mr. Schlesinger of Tonkin verbena oil. This has now been chemically examined, and found to contain 70 per cent. of citral.—*Chemist and Druggist*, March 26.

OUR TEA INDUSTRY: CURRENCY AND EXCHANGE:

THE CHAMBER'S MEMORIAL.

The following notes which reached us from a responsible "City" man interested in Ceylon will, we have no doubt, receive careful consideration at this time:—

"Talking yesterday with one of the best informed and most largely interested men in the Ceylon tea industry he informed me that comparing 1897 with the year 1894 he calculated that the adverse influences at work last year meant altogether a loss of £1,300,000 as compared with 1894, made up thus:—

(1) Difference in exchange 2d per rupee	£250,000
(2) Extra cost of rice	600,000
(3) Reduced market price of tea	450,000
	£1,300,000

That is for Ceylon only and if these figures are anything like correct the matter is serious indeed. The tea industry could no doubt successfully combat and overcome the difficulties caused by items (1) and (2); but the most serious matter is item (3), because it is likely to be more permanent and to get worse rather than better.

"Surely it would be better for the Government to push on the inexpensive line to Awissawella and so assist the tea industry there rather than give precedence to the expensive line to the North with its very uncertain prospects? I am not a pessimist, but I cannot help thinking that the time has come for very carefully disbursing, or perhaps even husbanding the revenue of the Colony."

It may be questioned whether it would not be advisable to include some such comparison as the above, or as lately made between 1896 and 1897, in the Planters' Memorial to Mr. Chamberlain. It would be out of place in that adopted by the Chamber of Commerce, because the latter has to serve for the producing or at any rate, the exporting interests of the Colony as a whole. The Chamber's Memorial will be found below. It is, in our opinion, an honest straightforward document which he who runs may read, and we are especially glad to note that the non-consideration by the Indian Government of the interests of Indian producers—the silent but suffering millions—is brought out. Mr. Chamberlain cannot fail to see at a glance how the shoe pinches in the case of Ceylon and he ought to be all the more ready to make his influence felt on our behalf from the fact that no special remedy is suggested; but that the memorialists on this occasion place themselves unreservedly in his hands.

Reverting once again to the "tea industry" we must guard against the prevalence of an opinion that those of the planters who feel the pinch now, have the remedy in their own hands,—in other words that the advice 'to pluck finer and make better teas' applies to all who are suffering from the bad times, and are unable to make both ends meet. Such is not the case. There is a considerable extent of the tea districts where the planters have never gone in for "quantity"—simply because their soil was not equal to yielding returns over 350 lb. per acre,—and who have always done their best by the leaf they gathered. And yet, many of these are now realizing that tea production will not pay, do what they can, unless prices improve or exchange falls. For such, the visible means of economizing or improving are exceedingly limited if at all existent. There are others who steering a medium course as regards plucking, complain of the cost of their transport, and say the railway could and should help them in this time of need. Of course, none of the lowcountry districts with their abundant crops of leaf are included in this category. To planters in the latter, as well as on plantations with virgin soil in higher districts, the counsel to pluck fine and improve the make and quality of their teas as a means of meeting the present hard times, may be very suitable. But, let Mr. Chamberlain and His Excellency the Governor understand that there is no inconsiderable acreage under tea in Ceylon whose owners may, before the year is out, require and deserve official aid quite as much as the West Indian sugar planters—if indeed their "case for relief" should not prove even stronger seeing that the direct occasion of their suffering is found in the action of the Indian Government in tampering with the Currency and forcing on the public an artificial, inflated and dishonest rupee.

THE EXCHANGE QUESTION.

THE MEMORIAL TO MR. CHAMBERLAIN.

The Right Hon'ble Joseph Chamberlain, M.P., Her Majesty's Secretary of State for the Colonies.

The memorial of the undersigned inhabitants of Ceylon.

Respectfully Sheweth,

That they represent the General Community of the Island, embracing all classes, and that they humbly beg to set forth the disadvantages under which they are at present suffering, and the deplorable condition to which the producing and exporting interests of the Colony is being reduced, owing to the policy of the Indian Government in regard to the Currency and the resultant artificial rate of exchange and dearness of money.

2.—That this Colony is dependent on India in a very large measure for its labour, and for its food supplies, these having to be paid for in rupees. The currency of Ceylon is identical with that of India, and cannot now apparently be dissociated from it.

3.—That with interest and discount ruling as they are now, at about 15 per cent. approved security, in Colombo, and even higher in outlying districts, the severe strain is exercising such a very adverse influence, that no industry can for any lengthened period stand it, and that business of all kinds is restricted and is being gradually strangled.

4.—That the staple export products of this Colony are not grains or cereals which are cultivated annually, and which if found to be unprofitable from any cause one year, need not be cultivated the next, but consist of articles, the cultivation of which requires a large capital outlay, and which have taken years to bring into production. If, therefore, the cultivation of these products be rendered unprofitable—and over a large proportion of the cultivated area of the Colony this point is dangerously near—the land will have to be abandoned and the result would be the loss of capital that has been invested and of all the time and energy that have been spent. In a word, it would mean ruin to many of those engaged in these industries, and prove a serious loss to the Government and Colony generally. There might then be a recurrence of the calamities which afflicted the Colony after the failure of coffee.

5.—That from its dependent condition, and merely by its adoption of the Indian currency, the Colony is obliged to be a party to the arrangements which were proposed and carried out for the supposed benefit of India, and is without any apparent means of extricating itself from its present difficulties.

6.—That as the efforts to establish the Rupee at 1/4 under the present policy depends upon the success

attained in rendering it scarce, it is manifest that so long as this scarcity is maintained money will be dear, all business be carried on with difficulty and the prosperity of this island endangered.

7.—That they do not believe that the Indian Government anticipated this effect of its policy, and they would urge a consideration of the position on your part in the interests of this Island more especially, as, when the action was taken, from the ill-effects of which they are now suffering, the interests of the producers in India—largely consisting of uneducated natives unable to voice their own interests—were overlooked.

8.—That the producing interests of Ceylon, your Memorialists would point out, are overwhelmingly more important than any other, and these interests through the Colony's exports,—over two-thirds of which are sent to the United Kingdom,—suffer in a disastrous way from an artificially inflated rupee, since so many of its products compete with those exported by other countries using a silver currency based on silver bullion.

9.—That whilst fully recognising the difficulties of the Indian Government, your Memorialists are of opinion that any tampering with its currency must be injurious to the trade of this Colony, upon the prosperity of which all revenue, public and private, is dependent, and they pray that such steps may be taken, as may be effectual to afford them speedy relief.

INSECT-PESTS.

Miss E. A. Ormerod, so well known as one of the best authorities on this subject, has just issued her twenty-first report on injurious insects (Simpkin, 1s 6d). It is a book which is of decided value to chemists, especially those living in agricultural districts, who, if not actually consulted about the insect pests, are called upon to supply the necessary chemicals for exterminating them, and should be able to give an intelligent idea of the methods of using the various remedies. We have in this report, covering 1897, notes on thirty-six insects, and although during the year there was no special crop-attack spreading widely over the country, the infestations of orchard and fruit crops were unusually troublesome. Plum-trees were much attacked by the shot-borer beetle (*Xyleborus Saxeseni*), large crops of strawberries were destroyed by ground-beetles (*Harpalus ruficornis* and *Pterostichus vulgaris*), and on black-currant bushes *Phytoptus ribis*, the currant-gall mite, was unusually active. We learn from the article on cockroaches that St. Bartholomew's Hospital has been infested with two separate species of these insects—the common cockroach and the German cockroach—each kind living quite apart, the German cockroaches eventually being driven out by the common variety or voluntarily migrated. It is with the remedies for insect-pests that chemists will be more concerned. Kerosene emulsion is frequently recommended, and as it is a somewhat difficult preparation to make except by methods well known to chemists, it should be a suitable article for retail trade. It is a preparation of paraffin, equally distributed by being mixed with soft soap and water. It is necessary that it should be made so that the emulsion will not separate, as paraffin itself is harmful to foliage. Another thing recommended as a top-dressing in some cases is kainite, the supplying of which seems to be drifting into the hands of seedsmen. Kainite is a salt of variable composition found in Strassfurt saltworks—it is potassium magnesium sulphate combined with magnesium chloride, and is represented by the following formula :—

$$K_2Mg(SO_4)_2MgCl_26H_2O.$$

Although a somewhat "heavy" chemical, there is no reason why the supply should not come through chemists. Other chemicals used are sulphide of calcium, bisulphide of carbon, and sulphate of iron. In the case of tobacco preparations, it should be noted that Messrs. Whiffen, of Battersea, now turn out large quantities of nicotine, the Excise authorities allowing them to use duty-free tobacco for the purpose, thus putting English makers on equal footing with foreign competitors.

We would recommend chemists in agricultural districts to read this book ; there is much useful information in it, and many suggestions of commercial value to them for the treatment of many kinds of insect-pests.—*Chemist and Druggist.*

TRAVANCORE TEA SALES.

Average 7·50d. April 1st.

Garden.	Total. Quantity.	Aver. Price.	Bro. Or. Pek. or Flowery Pekoe. Quantity.	Price.	Pekoe and Unassorted. Quantity.	Price.	Broken Pekoe. Quantity.	Price.	Pekoe Sou. Quantity.	Price.	Broken and Souchongs. Quantity.	Price.	Fannings, Dusts, and Various. Quantity.	Price.
Travancore ..	1319 p	5·70												
Bonaccord ..	192 p	5½	—	—	82 p	5¼	43 p	6½	34 p	4¾	—	—	33 p	3 5½
Braemore ..	219 p	5¼	—	—	66	5¼	118½c	6½	—	—	14	5	21½c	3 5½
Cheroot Mallay..	64½c	5	—	—	64½c	5	—	—	—	—	—	—	—	—
Great Valley ..	79 p	5¼	—	—	45½c	5	30½c	6¼	—	—	2½o	4½	2	2½
Invercauld ..	129 p	5½	—	—	58	5½	50 p	6 6¼	16	4¾ 5	—	—	5½c	2¾
Merchiston ..	72 p	5½	23½c	6¼ 6½	30	5¼ 6	13½c	6 6½	—	—	—	—	6½c	2¾
Poonmudi ..	192 p	5¾	—	—	84	5½	70½c	6¾	19	5¼	—	—	19½c	3 5¼
Riviera ..	30	5	—	—	26	4¾	4	6¼	—	—	—	—	—	—
Sth Trav TC Vent ..	236 p	6	64	7 7¾	154	5 6	—	—	—	—	—	—	18	3 3½
Wallardie ..	106	6½	—	—	20	5½	43	8¾	32	5¼	6	4½	5	4

Gow, Wilson & Stanton's Report.

TEA REVIEW:

ANNUAL REPORT OF MESSRS. GEORGE WHITE & CO., TEA BROKERS, LONDON.

We reproduce and issue as a *Supplement* the valuable Report received by a late mail from the above well-known firm of tea-brokers, and to which we direct the attention of all interested in our "tea industry." It opens with a review of the Indian, Ceylon and Java Tea Trade with the United Kingdom in 1897; and to take the last-mentioned first, we are glad to see that the said trade in Java tea is not increasing according to the landings in the United Kingdom. We have always insisted that with so good a market before them as Holland and Belgium (not to speak of the adjacent provinces of Germany,) the Java tea planters ought not to trouble the London market at all with their produce. In the year's review, we are shown how the Ceylon average has fallen from 8⅝d in 1895, to 8¼d in 1896 and to 7⅞d in 1897; but in the interesting comparative table appended to the Report, the averages are given for eight months only in each case, namely 1st July to end of February and for 1897-8, the returns may be quoted as follows:—

All Ceylon	..	8d
All India	..	8⅝
All Java	..	6⅞

Now to take the Indian districts:—

Darjeeling	..	10⅜d
Assam	..	10⅛
Dooars	..	7⅝
Kangra	..	7¼
Cachar	..	7
Travancore	..	6⅝

The above is for 8 months; but we may compare this with the Ceylon district list for 12 months:—

Udapussellawa, Nuwara Eliya, New Galway and Dimbula	..	9⅜d
Maskeliya and Dikoya	..	8⅝
Uva	..	8⅛
Eastern Districts from Maturatta to Rangala	..	7½
Central (Pussellawa, Ramboda, Pundaluoya Kadugannawa)	..	7½

And so on—see thirteen divisions of districts—some of them rather arbitrary—as detailed by Messrs. Geo. White & Co. in their table. It may be mentioned that of the Indian districts Kangra Valley is the only one that shows an improved average—7¼d in 1897 against 7d in 1896. The slow progress made in the re-export tea trade from the United Kingdom is not satisfactory. In three years we might expect a greater increase than from 30½ million lb. in 1895, to 36½ in 1897 or 6 million lb. of an increase. As regards prospects, Messrs. White hope for improved trade and larger home consumption, last year being affected by industrial troubles; but if war breaks out, we fear, there may be disappointment. All the more reason therefore, that, by finer plucking and more careful treatment, a better average quality of tea should be sent home during the present year. To this end, the Report before us makes one practical recommendation, which deserves attention here and in India. Why, it is asked, should coarse and dust teas be sent to London to increase the supply of poor and low-class grades really not wanted at home? Can an effort not be made both in India and Ceylon, to encourage a local *native* consumption that would work off a large quantity, if not the whole, of these lowest descriptions; and so relieve the pressure in packages and weight of descriptions of tea that it can scarcely pay, in any case, to ship to London, while prices are so low?

JAVA QUININE.

We have received this week from an independent manufacturer in Java a sample of quinine-sulphate made by himself. He says it contains "less than 1 per cent. of cinchonidine." So far as the absence of alkaloids other than quinine is concerned we find that the sample is good, and passes the ammonia-test; but the salt has in bulk a slightly yellowish tinge, although less so than another Java quinine, which was received here in January. We have submitted a portion of the sample to a well-known expert, who reports:—"It is evidently a very imperfectly refined product from a Ledgeriana bark. It might pass as 'unbleached quinine,' but it is certainly not of 'good commercial quality.'" Apparently, Java manufacturers have yet to learn the trick of how to make the sulphate absolutely white, and light as to density.—*Chemist and Druggist.*

BANDARAPOLA CEYLON CO., LD.

(Special Report for the "Tropical Agriculturist.")

The fifth annual meeting of this Company was held at 16, Philpot Lane, London, on March 31. Mr. George W Pain (chairman), presided, and among those present were Messrs. Hugh Fraser (managing director), Leopold F Davies, Mennel, Campbell, G G Anderson, A Leslie, W W Lord, W C Scott, J F Anderson, W Mackenzie and G W Dodds.

The CHAIRMAN said that the net profits for the year had amounted to £1,956 1s 8d, and the directors proposed to pay a final dividend of seven per cent and to write off for depreciation on buildings and machinery the sum of £295 1s 2d, carrying forward a balance of £66. They had had an average of 632 lb. per acre in tea, but the shareholders would notice that there had been a slight falling-off in the realized price. The directors had decided to incur no further expense for clearing for fresh tea while exchange was in its present unsatisfactory position, but they intended to continue to manure the estates freely (hear, hear). Except in that respect, and in regard to the ordinary expenses of the acreage now in full working order, they did not mean to incur any expense that could be possibly avoided till there was some settlement of the exchange question. They were able to pay the same dividend for 1897 as they had paid for 1896, although on an increased capital; and they had increased the reserve fund by £1,000 and written off nearly £300 for depreciation. The directors thought that, under all the circumstances, the report was a very fair one, and they felt that they were justified in thanking their manager, Mr. James Anderson, for the very satisfactory manner in which he had helped to achieve a very good result (hear, hear). He moved, "That the report and statement of accounts be received and adopted."

Mr. HUGH FRASER seconded, remarking that he considered they were in a very favourable and a very strong position. He did not think there would be any difficulty whatever in getting the shareholders to approve the report.

Mr. G. W. DODDS:—Is not the cost of manuring a very high charge? I see it comes out at about £3 10s 0d.

The CHAIRMAN:—It is artificial manure, and it is, of course, a very heavy charge. But the directors think it will repay the Company from the outlay (hear, hear).

Mr. MENNEL said he had sometimes had to offer criticisms (laughter) but on this occasion he saw that on the whole they had a very satisfactory report. Looking at the things that were hanging over their heads—the low markets and the high exchange—he thought the shareholders would have been quite satisfied if the directors had paid a slightly lower dividend and kept a little more in hand for the reserve fund. But they were always thankful for all they could get (laughter.) Looking at the political situation and at the state of things in Parliament he did not think they would be justified in looking forward to any alteration in exchange affairs—at any rate, not to an alteration that would better their position. Things were far more likely to get worse than better; judging by the feeling that was shown in officialdom and the state of political affairs generally he did not think there would be any move to better the position of the exchange.

A Shareholder asked for an explanation of the large item of expenditure put down for new lines and bungalows.

Mr. LEOPOLD F. DAVIES said he thought they ought to congratulate the directors on their decision not to clear any more land at present. He noticed that last year the amount of tea from the Company for home consumption was less than the quantity sent on the previous year. He hoped that the Chairman and all the Ceylon Tea Companies would address words of warning to their people against sending over too much tea, and against sending tea of inferior quality. In London what was wanted was tea of the best quality, not large quantities. The private garden owners were perhaps the worst sinners, and often sent over as much tea as they possibly could—and were not very particular what they sent. (Hear hear.)

The CHAIRMAN said with regard to what had been said about the rate of exchange, that the directors were somewhat of the opinion that there would not be a lower exchange; they would be glad if only they could know that it would remain at an average of 1s 4d. (Hear hear). At any rate they had made their calculations on that for the future. They were doing their best in the matter to which Mr. Davies had referred; they were quite alive to the importance of it. Mr. Porter had made some suggestions to their manager, and those suggestions would no doubt be carried into effect. The suggestions included one for a better system of withering than they had hitherto adopted. Mr. Porter was confident that if the new instructions were followed they would be able to improve their tea to the extent of ½d. per lb. (Hear, hear.) A shareholder had asked about the expense on bungalows, etc. In the last report they had written off £500 on account of the old bungalows and they had had to set about erecting new ones. On this they had spent R21,270. Then on new lines they had spent R2 091, on the factory R6,249 and on machinery R6,894. The machinery consisted of a large engine that had been put up, and a new wheel for increasing the water supply. The factory was a large one, and was in a good position. An entirely new bungalow had been built—a capacious one was necessary for so large an area of ground, and of course they wanted to make the managers as comfortable as possible (hear, hear.) All these expenses were considered necessary, and he could assure them that each item had been carefully looked into.

The report and accounts were adopted unanimously.

The CHAIRMAN moved: "That a final dividend be declared of 7 per cent, free of income-tax, payable forthwith, making a total dividend of 10 per cent for the year."

This was also carried unanimously.

Sir GEORGE PILKINGTON was re-elected a director of the Company, the Chairman remarking, amid laughter, that Sir George was probably doing his duty more effectively in Ceylon than his fellow-directors were doing theirs at home.

On the motion of Mr. L. F. Davies, Mr. John Dalgleish, C A., was re-elected auditor.

The CHAIRMAN moved a vote of thanks to the Ceylon and London staffs. The results, he said, were produced by the staff in Ceylon. In the London office, everything was done by the staff in the most capable manner, and he had always been able to get any information he required at a moment's notice (applause.) The best proof of belief in the fitness of the Ceylon manager, Mr. James Anderson, was that he (the Chairman) was sending out his son to work under him. He was starting for Ceylon on the next day (hear, hear.)

Mr. W. C. SCOTT seconded the proposition, remarking that he hoped Mr. Paine, junior, would add to their strength in Ceylon (hear, hear.)

The proposition was carried, and the meeting closed with the usual compliment to the Chairman.

PROGRESS OF TEA CONSUMPTION IN EASTERN EUROPE AND ASIA MINOR.

We are pleased to have a note from Mr. Marinitsch, dated Brindisi, April 3rd—he was on his way then to Vienna—and had experienced very cold weather just after leaving Port Said all along the Syrian Coast up to Smyrna. But the important part of his letter runs as follows:—"I am glad to tell you that the consumption of tea is visibly increasing all over Turkey, and that Ceylon sorts take a good share to meet the demand. It is amazing to see the progress, tea has made in the habits of the people inasmuch as at present, in some instances, tea is taken to alternate with coffee, it having dawned upon the people that tea when well made and *fresh* contains a good deal of stimulating power. Altogether you will be pleased to hear that people's tastes are now in that transitory stage which will ensure at an early date a larger consumption of tea and no doubt Ceylon's good qualities will give it the preponderance."

ENTOMOLOGICAL SOCIETY.—At a meeting of this Society held in London on the 16th ultimo—Mr. R. McLachlan, V. P. and Treasurer, in the chair—a paper by Mr. E. E. Green, of Pundaluoya, Ceylon, entitled "Further Notes on Dyscritina, Westwood," and illustrated by specimens and drawings, was read. The author had discovered two distinct species of Dyscritina, which he was able to keep in captivity and rear from the early larval stage to that of the imago. A discussion followed.—Local "Times."

THE CURRENCY QUESTION.

A Ceylon estate proprietor, now at home, writing from London, by a recent mail, remarks :—

"We are all deeply interested, of course, in the silver question, but from what took place in the House of Commons the other night, it would not seem as if there is to be any immediate relief. You will hardly credit it, but I have learned that some people who must be deeply interested in the matter of exchange, and who from their prominent position might be of some assistance in obtaining redress, or at least lead an agitation towards the opening of the indian mints, decline to take part in any such agitation.

"I have seen our old friend Mr. Sharpe, who is very anxious indeed to do something that would relieve us, and I dare say hopes, by means of the Committee appointed to enquire into these matters to aid us somehow. I must confess however that the flourishing condition of the Indian finances, as shown in their recently issued Budget Report, and the personal interest of those engaged in the affairs of that country, apart from the merchants and producers, prevent the former adopting or acting upon any view likely to relieve the land owners, and those whose welfare depends upon exchange being governed by the market value of silver as before. It would not matter so much if, as many at one time believed, a rise in exchange meant also a rise in the value of produce on this side; but at present at any rate, that optimistic feeling has been belied. Never I suppose has tea been so cheap as at present."

The Currency question was discussed by the Chairman Mr. C. J. Lindsay Nicholson at the general meeting of the members of the Agra Bank, Limited in London on 24th ultimo, when after dealing with the satisfactory business of the Bank in 1897, he continued :—

This bank has up till now done very well this year, and your directors are quite satisfied with the results. We have nothing to complain of so far; but it is impossible not to realise that India generally is suffering severely by the closing of her mints and the artificial forcing of exchange to 16d. It would ill become us to attempt to criticise the action of the Indian Finance Minister, Sir James Westland, as you may remember he was for some time a member of this board, and his colleagues were sensible of his undoubted grasp of all the difficulties of Indian affairs and finance. Still it must be felt that at the present moment the position of the Indian export trade is most serious and for the vast amount of capital invested in India and Ceylon in tea, indigo, and other products, the look out this year is serious. It has well been said that India's great currency problem can be solved by her fields and by her looms, and by them alone. I will read too extracts of trite remarks on the present position which must strike one forcibly. One is from Sir James Westland's speech early this year. He said :—"It must be understood that we are not rolling in wealth while we are refusing aid to others, and our inability to advance money is due, not to any wilful obstinacy, but to want of adequate means. The Secretary of State cannot draw on us for more than we are able to pay. The fear is, therefore, that the market may reach a point where money will become actually unavailable, and merchants will find it impossible to sell their bills." And very recently the President of the Calcutta Chamber of Commerce, speaking and its annual meeting, and I think most reasonably, said: "It is not for use to say by what plan a gold standard should be made effective but we can point out to Government that the present position is intolerable, and that it is clearly their duty, in the interests of their own finances and of our trade, to fix on a sound currency system." He asks that the Government plan whatever it may be, shall be published on the same day in England and India, and that time shall be given for its criticism by the experts and practical financiers of both countries before the scheme is adopted. He protests against delay in dealing with the question "not only because loanable capital is being driven from India, fresh capital repelled and trade hampered by the uncertainty of the future, but also because recurring periods of monetary stringency which we have recently experienced are gaining in intensity and it is impossible to foretell what the effect on Indian commerce may be when we are face to face with the next period of stringency which under the present policy, is as certain to come as the sun to rise tomorrow." I cannot go into the currency question, which has been said by Lord Beaconsfield "to have caused more madness than even love did.' Let us hope that amongst the multitude of councillors there will be wisdom.

EXCHANGE AND TEA.

Our hearty endorsation of the action of the Planters' Association, the Chamber of Commerce, and the general public at the meeting in the Council Chamber, does not blind us to a possible danger that may result to the island's Tea Industry as one result of such action. We say "possible," because injury to the credit of the island, or misapprehension of all the causes affecting the returns for our teas in the market, is improbable with those who have accurate knowledge of the industry and its exact position. It is only those who are ignorant of all the facts, who are liable to misread the information within their reach in a way prejudicial to the island and its industries. But we adhere to the view we expressed in a recent article, that the publicity that has been given to the drawbacks under which our tea industry is now labouring, is much to be preferred to the reticence which prevailed twenty years ago when our then leading staple, coffee, was threatened. The facts to be remembered in connection with the fall in the price of tea shares—and the fall has been by no means universal—are that it is due to more than one cause; that some of the causes are temporary and may possibly erelong disappear; and that the intrinsic value of tea plantations generally in a large proportion of districts in the island, remains much what it was before the scarcity of money and "hard times" set in some months ago. When any Company yields smaller returns than it has done for some years, its shares, if the necessity arises for offering them for sale, naturally fetch less in the market. The would-be purchaser looks at the last dividend, and sees no reason why he should pay for shares the price which the seller had paid in expectation of double that dividend. Then, if money is scarce, and if he has to borrow any part of what he wishes to invest in shares, he has to take that into account in making his offer; and the man who is forced to realize has, of course, to accept what is offered. Meanwhile, there are shareholders who are quite content with their investment, who have no need to realize and no desire for a change; and who still, possibly, value their shares at what they paid for them. Their tea, perhaps, fetched nearly the same price as the year before; and if the profits were less, dear rice afforded one explanation, high exchange did some mischief, and a bad season may have reduced the crop; but the bushes it may be are now responding to manure, and there is no reason why, with greater care in manufacture, the old dividend should not be declared again. In such a case as the illustration we offer, the Share List may prove a very fallacious guide to the real value of the property or the group of properties which is worked on limited liability principles, and so convey an erroneous idea to the outsider. With the stringency in the money market, and the exodus of shareholders to the

old country for a time, it is inevitable that shares should frequently fetch less than they are really worth, while the price originally paid during the rush may have been too high. We think it well, therefore, to caution outside readers against being led away by the notion that a fall in the value of shares, must necessarily, indicate a corresponding fall in the value of tea property. It is significant that we have had to chronicle the sale of an estate within the past few weeks, at £120 an acre,—albeit an exceptionally good estate in a very favourite district,—a price which if it has ever been exceeded, has been excelled only once and by a trifling sum.

The other point, which it is important to keep in view, is that high exchange is but one of the causes which have affected the diminition of profits from tea properties. We have already adverted to another—the high price of rice, due to the Indian Famine, aggragravated temporarily by the Allagalla slip. But, on the other hand, as Mr. Renton rightly insisted at the meeting of the Chamber, greater economy and greater care in cultivation and manufacture are not only possible, but they must be enforced. The way we have fallen behind India is not at all comforting to proprietors; and although the increasing area in the low-country responsible for coarse teas, may, to some extent, explain the lower average, it can furnish no answer to the specific complaint that, in roll and appearance, our teas compare unfavourably with Indian makes of the same sort. We are aware that some of our planters consider the leaf crop from Ceylon soils can never be so good. But there is room for improvement in local arrangements and it is also a question how far judicious manuring may give a better leaf. Many thoughtful planters, among those who answered our circulars last year and those who did not, were strongly of opinion that more direct supervision was necessary, both in the field and the factory; and now that we are drifting into hard times, we are hopeful that every effort will be made to ensure improved teas with the utmost economy possible. Men who so exert themselves will have no cause for self-reproach should they, for any reason, be unable to show a profitable result, because this will be due to causes beyond their control.

"TEA PESTS AND BLIGHTS."—For some time, we have heard very little of pests troubling the tea-planters in Ceylon and indeed with the prospect of over-production and the existence of low prices, there is not so much dread of the loss of a certain proportion of leaf. Still, no doubt there are fields and plantations still widely troubled by pests; and there has just appeared what must be regarded as the permanent standard volume on the subject. A copy has reached us from Calcutta today and it is entitled:—"The Pests and Blights of the Tea Plant being a Report of Investigations conducted in Assam and to some extent also in Kangra" by Geo. Watt, M.B., C.M., F.L.S., C.I.E., &c., issued by the Government of India. This is a bulky volume of 467 pages with a full index and table of contents. The eight chapters on tea pests are prefixed by an equal number on Indications of deterioration, 'plant life,' 'seed gardens and improvement of seed,' Hoing and Weeding, Drainage, Pruning, Planting, Tea Fertilisers. The volume is therefore a Manual for Planters, and it is one we shall doubtless have frequent occasion to refer to and quote after we have given Dr. Watt's pages a careful perusal.

PLANTING NOTES.

DEMAND FOR RAW COTTON.—The *Kobe Chronicle* translates the following Tokyo press despatch, dated 29th March, from a vernacular paper:—Owing to the scarcity of the stock of raw cotton, the cotton spinning companies at Osaka and other places have applied to the Nippon Yusen Kaisha that an extra boat be despatched to Bombay. Negotiations are going on as regards freight. The Nippon Yusen Kaisha will charter a foreign steamer for the extra trip.—*Hongkong Weekly.*

LOANS TO PEASANTS.—Cannot something be done for our peasants, to protect them from the usurer. We read in an Indian paper that taking advantage of the Agricultural Loans Act, the Chief Commissioner of Assam publishes in his provincial *Gazette* a code of rules under which any proprietor, landholder, or other occupier of arable land may borrow from the Government for agricultural purposes a loan not exceeding R300 at 6¼ per cent per annum. The period of repayment varies with the purpose to which the loan is applied but is always easy. Loans made for the purchase of seed are to be repaid from the profits obtained from the crops so produced; loans for the purchase of plough cattle are repayable in three years; the maximum in any case is ten years.

THE SUGAR CRISIS IN MAURITIUS—is described as follows in the *Commercial Gazette* to hand today and has some points parallel to the case of Ceylon:—

There are some persons in Mauritius—among whom must be included our correspondent whose remarks on the subject appeared in our issue of the 4th instant—who take a pessimistic view of the planters' chance of obtaining the loan of £400,000 which has been applied for. For our part we see no reason for supposing that Mr. Chamberlain will be less content to treat the position of the sugar industry in Mauritius with liberality han he is the West Indian planter. The conditions are analogous in many respects—the analogy is one instance being a depleted exchequer. As most people know, this state of affairs, in Mauritius, has been brought about, principally, by a short crop and the high price of the food which the country imports from India. Were the planters to obtain the loan of £400,000 it would not cover the deficit of 1897 crop. The real fact of the matter is, that the loan *must* be granted or great discomfort will prevail. Planters must have money to carry on their estates until the new crop comes in, and the money to enable them to do this is not in the country. This does not apply only to the estate proprietors who have liabilities to meet in the shape of interest and sinking fund, but also to those whose estates are unencumbered. It is only the interested, directly or indirectly, in Sugar Estates, who have any idea of the amount of money that is required "in advance" against a crop. Superintendence, cooly food and labour machinery, artificial manure, etc., have all to be taken into account. The loan of £400,000 has been applied for principally to improve the Sugar factories, but if its application be entirely restricted to this, other means will have to be found to provide monies for the upkeep af Estates until the crops come in. The yield for 1898 promises to be a very large one, and there is no reason why prices should go lower; so that making the necessary advances would not be hazardous. The question is:—where to find the spring to tap for the money to flow? So long as there are men like the Honourable Leclezio and Sir Virgile Naz at the helm of the planter's bark there will be confidence and hope—it is to them that all eyes are turned to find means to relieve the existing difficulties. Before long we shall know Mr. Chamberlain's decision as to the loan and we repeat, there is no reason to suppose it will be an adverse one—on the contrary he has said British Colonies, when in distress, must be assisted, and he is not likely to leave Mauritius out in the cold.

"THE WONDERS OF THE YANG-TSE VALLEY:"

"RICE FOR THE WORLD;" AND THE "HISTORIC TEA COUNTRY."

Mr. Alfred Kinnear has supplied to the London *Daily Chronicle* a very striking account of the region bordering on the navigable portion of China's central and grandest river—a region, moreover, which will now be rapidly exploited by British merchants and capitalists; as it is bound year by year to come, more and more, under British influence. The prospect is one that concerns the tea planters of India and Ceylon very nearly; but it is also one that opens up the bare possibility of a connection between China and this Colony, leaving India out of view, which, without being sanguine as to its fulfilment, is at least worthy of consideration. The two great difficulties in the way of Ceylon adopting a silver currency of its own have always been,—how are we to pay for our Indian rice and our Indian coolies? Nothing, it is always said, but the currency of India would suffice for these two indispensable elements of the Ceylon Planter's existence, as matters stand at present. But how if we got our rice from the valley of the Yang-tse—which is capable of supplying the needs of the whole world with this staple—and paid for the same in the Ceylon dollar to be coined of the same value as the dollar current in China—in other words an honest silver dollar? It is of course a question which only time and practical experiments could answer, as to whether rice could be laid down as cheaply at Colombo by steamers from the "Yangste" as from the Hoogly, although surely "exchange" for India, would give the former a certain advantage? As to labour, the difficulty is greater. We gather that new regions are now likely to be tapped with millions of hardworking Chinamen, many of whom would come to Ceylon or elsewhere for much less wages than the Coast Chinamen have hitherto demanded. But we doubt whether, under the most favourable circumstances and with more and better work, the Chinaman would ever be so cheap as the Tamil cooly; while there would always be the difficulty of diverse races and how the presence of Chinese would affect our Sinhalese as well as Tamils. True, in the Straits Settlements, the "Klings" (Tamils) and Chinese seem to get on fairly well together, and we are anticipating that from the Yangste Valley, a quieter and more agricultural class of yellow labourers is likely to be available as emigrants. Be that as it may and remembering how, year by year, more and more of our Tamil immigrants seem to settle in Ceylon—15 to 20 per cent perhaps—would it be impossible to have the dollar and face the "exchange" question with "Ramasamy" so long as he had his rice duly supplied as at present? In other words when the time came for coolies to return to their country all that would have to be done would be to exchange their dollar-balance of wages for Indian rupees. Even now it is pressed urgently on planters to get their departing coolies to allow their money be remitted by postal order in place of risking the carrying of silver in their cloths. The Post Office then would have no more difficulty in granting orders in "Indian rupees" for the equivalent of "Ceylon dollars," than for issuing sterling orders in exchange for our current rupees.

But leaving aside these questions of Currency, Rice and Labour Supply, there is another matter of unquestionable importance to our planters, arising out of the opening of the valley and border lands of the Yang-tse; for, these include the historic tea region of China, and with the progress already made on the Coast in establishing factories and securing machine-made teas, it is only reasonable to anticipate changes and improvements of special significance in the tea districts leading out from Hankow, as these come under the influence of British merchants, agents and possibly, of British tea planters working with an honest silver dollar at an advantage of 60 or more per cent over their brethren in India and (if it so be) in Ceylon. In proof of the importance of the advance and change that are fast approaching, we proceed to quote from Mr. Alfred Kinnear's paper, the portions which bear expressly on the fortunes of our planters in respect of their staple product, their rice, and labour supply. Mr. Kinnear writes:—

In the scramble for China Britain's place in the interests of herself and of the world is in the Yang-tse Valley. Even as it is, we dominate the most magnificent, most virile territory in the world. There is nothing to be compared with it, not even upon the banks of the great rivers of America. It is a territory of illimitable possibilities, for it constitutes all that is best worth having in China. It is the richest in the empire, and with its undeveloped opportunities the richest in the world. It is the tea-garden of the historic tea country. It is the birthplace of the discovery of silk. It cuts China in half, and it is a belt magnificent to the eye and jewelled with the brightest gems of commerce.

For 3,000 miles down to Shanghai, flowing between opulent valleys, the Yang-tse Kiang is nature's ready carrier for the produce of 700,000 square miles of the most wonderful soil in the world. There are points at which it expands into an inland sea, so that the traveller standing upon the deck of one of the many fine English liners that connect Shanghai and Hankow may look in vain for the banks that hedge this colossal artery. Then there are turns which suddenly switch the voyager into a defile of steep and rugged rocks, quaintly jagged, as with stony arms they would shake hands one frowning crag with another over the dark waters below.

The towns are numerous, and some of them are from a trading as well as a European point of view places of importance. But between them there are long tracts of open and wooded country glorious in its wealth of uncultivated vegetation, which only awaits reclamation by the pioneer. It might be made to grow

RICE FOR THE WORLD.

It grows wattles only. Wealth is a crime in China, and to conceal its possession is a virtue. The owner of the soil cultivates wattles because to cultivate rice would bring him under the suspicion of the Taotoi, and subject himself to the "squeeze" of the tax gatherer. So he remains poor that he may remain untaxed. That is political economy as "she is taught" in China.

While at Tientsin I was carried by an eminent European resident into a native street, and was presented to a dismal individual in a squalid home, reeking in filth. My friend informed me later that I had been with a subject of the Emperor who might put down sovereign for sovereign with Lord Rothschild. He simulated poverty to escape the Taotoi, who as it was taxed him and squeezed him on suspicion up to the income of an English Chancellor of the Exchequer. It is the fear of taxation that depresses native enterprice in China and keeps the valley of the Yang-tse for the greater part a glorious wilderness.

Vast quantities of game, wild geese, wild duck, snipe, and pheasant and deer abound about Chinkiang. The scenery almost throughout the entire length of the Yang-tse Valley, which for practical purposes begins at Shanghai and extends to Ichang is curiously English in tone. It is infinitely more English than

America. The landscape is suggestive of Berkshire, and recalls the fertility of the upper reaches of the Thames. The wilder intervals of the Yang-tse are picturesque rather than grand. But these passed, the scene relapses into the normal characteristics of a valley, and the eye may roam for miles over a varied

PANORAMA OF FERTILITY,

wood and glade in alternate profusion, until the vanishing perspective is lost in a blue streak low down on the horizon betokening a far away range of hills.

It will be observed by a visitor, however brief his visit may be, that at each of the river ports up to Tchang, British interests—I will not say British influence—are already in the ascendant. We hold three-fourths of every material acquisition held by the European community.

HANKOW IN THE TEA SEASON—

in the period when the growers send down the new crops of the year for export—is a scene of incredible energy and bustle and business. The fine roadstead which the river at that time of the year affords is crowded with a great fleet of steamers, but ninety-five per cent are under the British flag. The best of the tea exported to Russia goes overland, but on one occasion a magnificent vessel steamed up and anchored under the Russian flag, and she turned out to be one of the Volunteer Fleet from the Black Sea. She was heavily enough armed to have run amok of the river, and though her captain took on board a fair consignment of tea, it was suspected that her mission was rather in the nature of a reconnaissance than in the nature of peaceful trading. Hankow itself corresponds in every respect to the gospel of British monopoly of trade. The Yang-tse Kiang's total course is estimated at 3,600 miles. At low seasons the tide runs up for 520 miles, and beyond this point the river is navigable for 1000 miles.

*** To put it in a nutshell, the British ascendency in China has grown out of the capitalised British investment of not less than £300,000,0000 sterling. The centre of our interests lies undoubtedly in the central provinces of China, Shanghai, on the seaboard, and Hankow, 700 miles inland (with all the treaty ports lying within that strip) are

PRACTICALLY ENGLISH TOWNS.

The entire German population might be deported in a single steamer without inconvenience to themselves or their fellow-passengers. By the occupation of the Wu-Sung ports the mainstay of our trade in China, from Chefoo to Hong Kong, and from the sea to the confluence of the Yalong Kiang and the Kin-Kiang, would be safe. We might then regard complacently Germany's "twelve-mile radius" at Kiao Chao and leave Russia tranquilly to rejoice in oth sterile comfort of Port Arthur, for we should then dominate the most magnificent territory under the Eastern sun.—Alfred Kinnear.

"THE QUININE QUESTION."

This is the heading of an article in the *Chemist and Druggist* from which we learn that "two years ago a German professor estimated the world's annual consumption of quinine salts to be 7,000,000 oz., and those who were able to check him did not think the professor wide of the mark. This must now be taken as an underestimate, for in the year ending December 31st, 1897, the United States alone imported 4,364,823 oz. of quinine sulphate, and as a third as much is made in U.S.A. as is imported, it follows that the consumption there is well over 5,000,000 oz. a year. The rest of the world consumes somewhat more, as Java alone supplies 100,000,000 oz. of quinine sulphate in the bark yearly, and the supplies from other sources bring the total up to over 12,000,000 oz."—Our contemporary may see from our review in the "Ceylon Handbook and Directory" that so far back as August 1895, we gave statistics to show that the quinine consumption of the United States was not less than five million ounces—or nearly half that of the world which we estimated (giving details for different countries) at close on 11 million ounces. No doubt in the two-and-a-half years which have elapsed, the consumption has increased to 12 million or more ounces. Mr. Joseph W. England, of Philadelphia, has been writing on the subject, and he reports that,—

Mr. England tells us that "since 1879 the United States has been the dumping-ground of Europe's excess of quinine" How long that will obtain is a problem—says our London contemporary—not that American manufacturers will increase their production, but because Java, as a quinine-producer has to be reckoned with. Nearly three years have elapsed since the foundation of the factory at Bandoeng, or, rather, Samarang, was laid, and the first consignments of quinine sulphate manufactured there are to be put forward to auction, one in London this week, another in Amsterdam next week. The Java people seem sanguine of success, as may be judged by the following glowing epistle which we have received from Amsterdam:—

'On April 6th twenty-one cases, each containing 12 kilo. tins of Java quinine, will be offered in public auction. This is the first import of the quinine manufactured in Java. According to the chemical analysis of Dr. W. F. Koppeschaar, the quinine is of excelllent quality, and can compete with the first qualities of the European market. There is every probability that the Java factories will in the future continue to send considerable quantities of their make to our market, and they will be able to sell at a lower rate than their European competitors, because they avoid the great expenses of freight, commissions, &c., on the bark, and have their plantations at their door. Should the English market show sufficient interest in this quinine, we feel sure that we shall be able to get the manufacturer to put it up in a style suitable for that market.'

Here are performance and a promise. The only comment that need be made in respect of the performance—*i,e.*, the production of quinine in Java—is that they have hastened slowly, and they might, while they were at it, have made the quinine salt exactly as we like it—viz., in perfectly white, feathery crystals. It is almost impossible not to make chemically pure quinine from Java bark. The parcel of 10,000 oz. which comes up for sale in London today (Thursday) is accompanied by the following analysis from Dr. B. H. Paul:—

'The sample of sulphate quinine (1 tin) received from Smith's warehouse gives on analysis the following result:

Water	15·4
Quinine sulphate	84·6
	100·0

The quinine is of high-class quality.'

This analysis has tended to prejudice the article in Mincing Lane, through no fault of the analyst, but because many who are interested in the article have looked upon the 15·4 per cent of water as a contamination. We may, therefore, explain that B.P. sulphate of quinine contains 15 molecules of water of crystallisation—*i.e.*, slightly under 16 per cent of water, so that the Java article is excellent in this respect. But while the quinine is chemically pure as far as pharamacopœial tests go, it is in too minute crystals, and has a distinctly yellowish tinge, viewed by reflected light. The characteristics make it objectionable for general sale, and it is probabel that it cannot be used for anything but manufacturing purposes. The result of the London auction will be noted in our trade report, and whatever that may be it is interesting to observe that, in Amsterdam, the price wanted (20 florins per kilo. = about 11½d per oz.) is too high to bring it into competition with German quinine. To get a footing Java quinine must compete in price as well as in quality. We see no reason why both should not be done, especi-

ally as the director of the Bandoeng factory said, when the unit was very low, that he could produce quinine sulphate at a cost of 3½d per oz. At present it is worth 6d in the bark, so that there is sufficient margin to make it merchantable and to cut the price—if the European makers do not get before Java on the latter point, which is not improbable, seieng that cinchona is cheaper again.

PLANTING NOTES.

"CHINA CLAY."—A New York trade journal reports a "strong market" for China clay for pottery purposes. With vessels running direct from Colombo to New York, it may pay to ship some of the deposits of "Kaolin" or fine China clay which are found at different points, especially in the Nuwara Eliya district.

CASTOR OIL PLANT FOR SILK WORMS.—I hav three varieties of the plant here, seed as used in India for oil purposes They grow promiscuously and come up spontaneously in newly cleared land, if I am not too low and too dry (35 inches rain in a year). I have at all events ample food free.—*Cor., lowcountry.* [An experiment is wel worth making.—ED. *T.A.*]

NEW AREAS OF CULTIVATION IN THE N.-W. PROVINCE are thus given by Mr. King in his Annual Report:—

The cultivation of the coconut is advancing everywhere in those districts of the Seven Korales in which the rainfall is sufficient. It is difficult to arrive at the correct figures, but several thousand acres must have been added during the past year. It is also difficult to measure the advance of the asweddumisation of land for paddy, but this should be put at not less than 1,000 acres. The area of tobacco land is also extending, particularly in Hiriyala. The extent under cultivation in the Seven Korales is given by last return as follows:—

Hiriyala	..	..	694 acres
Dewamedi	..	..	590 „
Weuda ..	..	..	157 „
Katugampola	..	..	59 „
Total	..		1,500

In the Chilaw district there are over 700 acres under this cultivation, and about half that area in Puttalam. [These figures are far below the fact.—ED. *T.A.*]

THE PROCEEDINGS OF THE INDIAN TEA ASSOCIATION which we print elsewhere, are—says the *Indian Planters' Gazette*—more than usually interesting. One of the important subject discussed was the connection between the mints and the planting community. We referred some time ago to the protest entered by the United Planters' Association of Southern India regarding exchange, and demanding the re-opening of the mints. The London Secretary of the Association having asked for the views of the Indian Association, has been informed that the General Committee of the latter entirely agreed with the Southern India Association and would be prepared to take up the matter. This announcement will be received with general satisfaction by the entire tea planting community of India. We have all along held the view that in the absence of a stable exchange, the salvation of the Indian planting community depended upon the re-opening of the mints. The rising exchange value of the rupee has had disastrous effects on the tea industry of Ceylon as we showed last week. Capital which ought, in the usual course, to have remained in the Colony, is being transferred to America.

DISHORNING DAIRY COWS.—The dishorning of cattle is a subject which may be said to be settled in the affirmative so far as the great dairy districts of Illinois and Minnesota are concerned. On approaching a farmer for his reasons why he dishorned his stock he stated that he made the cows more gentle and docile, and that he noticed somewhat of an increase in the milk yield since it had been done. The cows lost their fidgety, nervous appearance, and did not seem to be so much afraid of the leader of the herd. Removing the horns, when it is properly done by the Keystone dishorning knives made by A. C. Brosius, Cochranville, Pa, is not a painful operation, as is evidenced by the fact that it will scarcely interfere with the flow of a cow's milk as much as the chase around the pasture in the front of the farmer's dog will do. These best acquainted with dishorning and its results are its strongest advocates.—*Oregon Agriculturist.*

THE PARIS EXHIBITION.—We see it stated in the Indian Press that a "comparatively small area of the Exhibition grounds is to be set aside for the construction of national pavilions by such countries or colonies as care to build them. This is an opportunity of which India certainly ought to avail herself. One of the most interesting features of the Exhibition of 1889 was the Indian Palace, in which Indian tea was served to all and sundry by Indian servants. This enterprise was avowedly undertaken with the idea of encouraging a taste for Indian tea in France." Accordingly the *Indian Agriculturist* suggests that India and Ceylon should join forces to establish a permanent organisation in France to promote the consumption of British-grown teas. There are 36 millions of people, our contemporary says, to be won over to "tea," and already a good beginning has been made. As to the Exhibition itself our contemporary speaks well of the new arrangement:—

INDIAN TEA IN FRANCE.

It is to be hoped that the Government of India is already considering what steps shall be taken for the suitable representation of the great industries of this country at the Paris Exhibition of 1900. The matter will certainly require more careful handling than it did on previous occasions, because of the new system upon which this Exhibition is to be arranged. The French authorities have decided that, instead of grouping the various exhibits in sections, according to the countries from which they come, all exhibits of a similar character are to be placed together, whatever be their country of origin. This plan has the great advantage of enabling the visitor easily to compare the competing products of different countries; but it excludes the possibility of any one country making a general display of the whole of its industries. From this point of view, in fact, it may fairly be said that the Exhibition of 1,900 will be the first really International Exhibition; for national differences will be ignored, and competing producers from all parts of the world will have to set their products side by side with the similar products of their competitors, apparently also the organisers of the Exhibition hope, by the adoption of this principle, to secure a more uniform system of arrangement and decoration, for in each section, whether it be steam-engines or perfumery, the French authorities are to be paramount. From the point of view of picturesqueness this will probably be a distinct gain, not because uniformity is a necessary, or even in general a desirable, element of beauty, but because of the undoubted artistic feeling of the French people. Visitors to previous Paris Exhibitions who can remember the contrast between the brightness of the French and the stodginess of the British sections, will be greateful for the fact that no British Royal Commission is again to be allowed to try its hand on artistic work.

SINHALESE TEA-MAKERS FOR CHINA.—Messrs. Molchanoff & Co., are advertising in another column for a thoroughly competent native tea-maker to proceed to China on a six months' engagement. We understand that they intend to employ the man, when they have selected him, at a factory belonging to themselves at Hankow, where they are about to erect proper English machinery for making tea.

BOLIVIAN RUBBER SYND., LD. (56,508).—Regd. March 15th, with capital £5,000, in £1 shares, to seek for and secure openings for the employment of capital in Central and South America or elsewhere, and to acquire, own, and work any rubber-bearing or other lands on the banks of the river Amazon or its territories. Regd without arts of assn. Regd. office, 22, Charter-house Sq., E.C. —*Investors' Guardian*, March 26.

PLUMBAGO AND SOME MINOR INDUSTRIES are thus detailed by Mr King in his Annual Report on the N.-W. Province :—

Of industries not elsewhere referred to, mention should be made of plumbago. The quantity of plumbago conveyed by rail out of the Province was about 4,000 tons. A large factory for the desiccation of the coconut has been established by Mr. John Clovis de Silva close to the town of Kurunegala, which gives employment to about one hundred persons.

A SIMPLE FIRE EXTINGUISHER.—Hand grenades, the simplest form of fire extinguisher, can be made at home cheaply and easily. And it is well to have at hand a simple contrivance for extinguishing at small fire at its start. Take twenty pounds of common salt and ten pounds of sal ammoniac (nitrate of soda, to be had of any druggist,) and dissolve in seven gallons of water. Procure quart bottles of thin glass, such as are ordinarily used by druggists, and fill with this, corking tightly and sealing, to prevent evaporation. In case of fire, throw so as to break in or near the flame. If the fire is in such a place as to prevent the bottle from breaking, as in wool or cotton, knock off the neck and scatter the contents. The breaking of the bottle liberates a certain amount of gas, and the heat of the fire generates more, thus working its own destruction. —*Diocesan Gazette*.

CHEAP COFFEE.—The very low prices now ruling for coffee forces the question. Has the decline reached its limit? During the era of high-cost coffee, which ended in 1897, the planting of coffee trees in Mexico, the Central American States, and the United States of Colombia was greatly stimulated, as it was in Brazil, that Colossus among coffee-producing countries, which produced a crop last year and this equal to nearly two-thirds the total production of the world. Brazil's vast production makes that country the dominating factor in the situation, so that any failure of the Brazil crop would mean a rebound in prices. Such prolific bearing as during 1897 and 1898 rarely continues for three years in succession. If history repeats itself, and the crop of 1898 99 should drop back 25 to 33⅓ per cent. below the two previous crops, then coffee must advance. Below we present figures showing the Rio and Santos crops for ten years, and which demonstrate the fluctuations in yield and the probability of a sudden change from low to high cost within two years :

	Bags.		Bags.
1887-88	3,033,000	1892 93	6 202,000
1888 89	6,827,000	1893 94	4,309,000
1889-90	4,260,000	1894-95	6,695,000
1890-91	5,358,000	1895 96	5,476,000
1891-92	7,397,000	1896-97	8,680,000

American Grocer.

TEA IN AMERICA.—The following instructions were issued at Washington on March 5th by the Treasury Department :—

All teas arriving after May 1st, 1898, shall be governed by the new standards adopted for the season beginning May 1st, 1898, and ending April 30th 1899, excepting such teas as shall have been shipped prior to March 1st, 1898, which shall be governed by the old standards.

THE QUININE INDUSTRY IN GERMANY.—Some interesting figures are given in an article on this subject in the *Suddeutsche Apotheker Zeitung* last week. During the 10 years 1887-1896 Germany imported cinchona bark to the value of 35,500,000 marks, whilst her exports in this article were only 2,000,000 marks. Her exports, however, in quinine and quinine salts reached the enormous total of 58,000,000 marks, of which the greater part was to the United States, Russia, Italy, and Holland absorb large quantities also. The imported quinine totalled, during the decade in question, 2,100,000 marks.—*B. and C. Druggist.*

PLANTING REPRESENTATIVE.—Why do not the leaders of the indigo and tea industries (asks the *Indian Planters' Gazette*) insist on having a representative on the Bengal Legislative Council. The matter has been brought forward on several occasions, but been quietly shelved. Surely in a matter like the recent amendment to the Tenancy Act such representation would have been most useful. The industries are, we believe, important enough to be represented separately, but if that be not feasible, planters should not rest until they have some one who is qualified to speak on their behalf.

ALUMINIUM UTENSILS.—The attempt being made at the Madras School of Arts to introduce aluminium as a substitute for brass and copper in the manufacture of domestic utensils, seems, says the *Madras Mail*, to have got beyond the experimental stage. About fifty workmen have been brought up from the great metal-working centres of the Presidency, to work off the large number of orders which have been received from all parts of India, and it is expected that the number will soon reach one hundred. Arrangements have been made to secure a regular supply of metal, and any one desirous of testing the claims put forward for the new metal can place orders at the School of Arts with the assurance that he will not be kept waiting.

FRUIT TREES are in some respects—says *the Planters' Monthly* (*Hawaii*)—like human beings. They live, eat, drink, get diseased and die. If trees could talk, they would probably say : "Save us or we perish ; give us something to eat, we have too much to drink ; remove the weeds that are growing all around us ; and poison the gophers that are devouring us." Every year that you take a crop from your trees give them something for it. Don't ask them to give off their substance without an adequate return. Fertilize every year by using a good article of commercial or other fertilizer. If we want our orchards to live to a good old age, we must take care of them. If trees need fumigating, have it done ; don't say you cannot afford it. As a matter of fact you cannot afford to neglect it. A well-cared for orchard of fruit or coffee trees will produce good crops for several generations.

INDIAN TEA ASSOCIATION.

Abstract of proceedings of a meeting of the general Committee held on 14th March, 1898 There were present :—Messrs. G. G. Anderson, Chairman; A. F. Bruce, M. R. Quin, T. Traill and W. Warington.

In his letter of 18th February, the London Secretary drew attention to a press telegram which stated that the "Planters' Association of Southern India have addressed a strong protest to the Government concerning exchange, and demanding the re-opening of the mints, urging that increased trade would outweigh the Government loss," and he asked for the views of the Association on the subject. After discussion, the Secretary was instructed to inform Mr. Tye that the general Committee entirely agreed with the arguments put forth by the Southern Indian Planters' Association, and they would be prepared to take the matter up.

Letters of 28th January, and 4th, 11th and 18th February, from the Secretary, London Committee, in connection with the Amerrican Market Fund, with their various enclosures, came up for reference and record. The Committee read Mr. Blechynden's report with much satisfaction, and the Secretary was instructed to reprint and circulate copies to all members. In his letter of 14th February, the London Secretary stated that, after due consideration of Mr. Blechynden's advices, the London Committee, were of opinion that the Association should continue its work in America for another year.

The general Committee expressed their concurrence with this view, and instructed the Secretary to ask for contributions from members for 1898, on the previous basis.—*Indian Planters' Gazette*, April 9.

COCONUT PLANTING IN MARITIME N.-W. PROVINCE.

Marawila, April 21.

The date of the burst of the monsoon is a vexed subject of annual recurrence. Each station has a different date for the occurrence. We have every indication of the S.W. monsoon, in breezes from the sea, its roar, which is heard for a good distance inland and heavy rain-clouds rising from the sea in the mornings. Occasionally, too, we hear the low rumblings of thunder from the South-West.

The period of drought we passed through was an exceptionally mild one. We had no rain for exactly one month, but coconut trees did not show the slightest signs of distress. The fact is, our district is flat and low-lying and the level of the water did not recede beyond the reach of the roots of the coconut tree.

An exuberance of pasturage is not a characteristic of districts abounding in sandy soil. Cattle feed mainly on the roots of grasses and their food supply was by no means lessened by the drought and their condition was all that could be desired. Sheep, and well-nourished cattle everywhere was the rule and not the exception.

Those who practise the mulching of the soil round coconut trees after digging in manure and promoting a loose, porous tilth round them, must find great encouragement from the article, which appears in the last number of the "Agricultural Magazine," on Fruit Culture.

The usual way of applying manure is in shallow trenches round the tree and covering them up. I usually dig the manure in round the tree as this tends to mix the manure with the soil and also prevents the caking of the soil. To further keep free and porous the soil, turned up, I mulch round the tree with coconut branches cut up and weeds when available. This helps trees to pass unscathed during a period of drought. The turning up of the soil round trees in annually widening circles is especially useful on hard, heavy soils. From an æsthetic point of view, an estate quite clean and trim and without a branch to be seen on the ground is very nice and gives its superintendent quite a reputation as a good planter. I prefer to subordinate æsthetics to utility. Study the habits of the coconut tree with some care. You will find that in shedding its fronds, the butt-ends are generally farthest away from the trunk. A neglected tree will in time have quite a litter or mulch of fronds. Nature thus provides for the requirements of the tree. Man must follow the teachings of nature.

MACHINE-MADE TEA IN CHINA.

The *North China Daily News* says that very great interest will be taken in the modest prospectus of the Liang Hu Tea Improvement Company. The leaf grown in China is still the best in the world, all the plants that produce decent tea in India and Ceylon having been introduced there from China; the trouble is in the mode of preparation. Three or four men have been working for some years to get the Chinese to adopt the modern system of manufacturing tea. The manufacture has been adopted successfully on a small scale at Foochow, and experiment made at Wenchow last year with very inferior leaf opened the eyes of the Chinese as to how by the use of machinery they may regain the market they have lost. Now the teamen of Hankow and high officials of the great black tea producing provinces, Hupeh and Hunan, have been interested in the matter, seeing that a recovery of the English market means wealth to themselves, as well as to the growers and the foreign merchants who handle the picked product. A company, modest enough in its inception, has been formed at Hankow with a capital of Tls. 60,000 and Shanghai is appealed to for its co-operation. It cannot be doubted that in this small beginning we have the germ of a revolution in the preparation of tea in China, and a resurrection of the trade between Hankow and London, which is dead if not actually buried.

COCONUT PLANTING IN THE STRAITS: NEWS OF MR. DONALD MACKAY.—The following interesting extract from the letter of Mr. Mackay to a friend has been placed at our service:—

My departure has to be again postponed, and I don't think it is any use my thinking of leaving Perak before the 7th prox. for Ceylon. I have good hope I shall be able to leave Penang on that date. The *Observer*, I see, has written an article on the fall in coconuts, his text being Horrekelle results for 1897. You cannot from one estate reason out for all, and I much doubt if the reasoning is applicable in Ceylon: I know it is not in the Straits, for the price of coconuts was never so high nor the demand so great for both the inland and export trade:—

Penang export price for nuts \$28½ per 1,000;
Local sales, home consumption \$30 per 1,000;
Seed nuts, selected \$40 per 1,000;

and difficult to get at that. There is a great rush into coconut planting no one is putting; in any more Liberian. We shall have about 30,000 coconuts in the ground by the end of this year. We have begun ploughing —Messrs. Davies & Co.'s plough not strong enough. Have written to Mr. Lewis Brown for one of the Horrekelly Swedish ploughs."

With such prices as Mr. Mackay names, it may pay some day to ship coconuts from Colombo to Penang?

MANURING AND ECONOMIC PRODUCTION.

We would draw attention to another interesting contribution from Mr. Baur on the above subject. It has been hitherto assumed that weeds were chiefly harmful because they take nourishment out of the soil; but the reason given by our correspondent is, at least, worthy of attention, if indeed, it be not admitted to be the correct one. The weeds being chiefly surface feeders, they dry up the surface soil, which is also the scene of activity of the micro-organisms. Mr. Baur's advice as to the necessity of loosening the soil is not a novel one, but now that the reason has been scientifically explained, and the advantages to be gained made clear, the matter should receive increased attention from planters. They all know the ease of the Superintendent who cut manure holes, and after waiting in vain for the manure, covered them in again with the best possible results to his coffee,—for a time. The explanation is found in the increased activity of the micro-organisms and of the consequent increased formation of nitrates in a soil that had been worked. Further interesting information is that which refers to the transpiration of plants and how by a proper system of manuring the same can be diminished, so as to retain the water in the soil for use during the dry months. Those who suffer from drought and small flushes have here a remedy indicated. Altogether the letter before us is exceptionally suggestive and should be carefully perused and as much as possible acted upon, by planters.

NUTMEG CULTIVATION.

The nutmeg cultivation is one of the profitable cultivations as a staple product. The cultivation is simple in all its branches, and does not take long for a novice to learn the planting, caring, and preparing the produce for market.

There are many part of the island in which the nutmeg may be grown to advantage. It will not pay if planted in shallow soil or on stone ranges, and from lack of moisture, the plains on the south side of the island would be unsuitable. But on the north-east from St. Mary to Morant Bay, in any well sheltered spot, well drained, with deep soil the nutmeg should thrive well. The climate should also be mild and seasonable with frequent showers. The trees should be planted twenty to twenty-five feet apart each way, according to the nature of the soil. They are generally planted three in one hole triangularly, two to two feet six inches either way. They are planted so as to ensure a female tree to each hole (but sometimes two or three declared females or bearing trees) and in that case you can transplant to a vacant spot, and destroy the males or non-bearing trees. But in all cases it is requisite to leave the males to each acre of cultivation. In destroying and transplanting never leave more than one tree to each hole. The young trees should be transplanted when about one year old.

Nutmeg trees commence to declare from three years upwards, according to the nature of the soil and situation, (but they have been known to take twelve years to declare). In one case the trees were exposed, and in another case the soil being too fertile the fruits went into leaves and sap. A tree taking a long time to declre can always with safety be counted to be a bearing tree. After they have commenced bearing, and the limbs droop with the weight of the pods and exclude all light, they should be then carefully propped up so as to admit light. If kept too dark you will lose a lot of your nuts from premature opening of the pods. In establishing a nutmeg plantation it is always best to have cocoa planted between, besides the intermediate crops of vegetables, such as coco, cassava, bananas; but coco is considered the best, cassava comes next, but they must not remain in the earth longer than one year. As soon as the nutmegs commence to get covered in and require room for the expanding of their branches, you commence to destroy the cocoa trees, just taking off a limb or two as required to make room. It is generally better to pick the nuts during wet weather, in young cultivations, as the rain spoils the mace. In dry weather you need only to gather the nuts as they drop from the trees. After the nuts are gathered, the mace is then taken off, pressed into shape placed in the sun to be tried, though neither nutmegs nor mace should be submitted to very much sun in curing. In wet weather when you cannot depend on the sun, you must place the mace on wire netting, and put it in a place where there is a free current of air, to prevent the mace from mildewing. A good bearing tree is averaged to yield £5 per annum. The expences on same or less than on any other cultivation of staple products when properly managed. I have supervised a nutmeg plantation in the island of St. Vincent where there are only ten acres in bearing nutmegs, five acres of which have just declared within the last year. But it is to be remembered that a nutmeg tree is never considered in full bearing until it is twenty years of age, and it continues bearing for very many years. This plantation yields £400 sterling per annum. The expenses, including boxes for shipping, etc., amounts to £50 per annum. The prices of nutmegs vary a good deal, for the best and largest nuts from 2s to 3s 6d per lb. The intermediate sized and long sized nuts are sold in proportion to the large ones, varying from 10d to 2s per lb, worm eaten and rotten nuts are also shipped, these vary from 4½d to 8d per lb. Mace also varies a good deal, from 1s 6d to 2s 6d per lb. I think that any one having land in a seasonable locality, would do well in establishing a nutmeg plantation here. D. W. MINORS.

—*Journal of the Jamaica Agricultural Society.*

MARKET FOR MINOR PRODUCTS.

London, April 2.

COCA LEAVES.—Bold green and sound Ceylon leaves sold at 7d per lb. and dull and damaged at 4d. Good green Truxillo leaves were bought in at 8d a bid of 7d being declined.

CROTON-SEED.—Dearer. Good seed, rather irregular in colour, sold at 61s. per cwt.

OIL, CINNAMON.—Five parcels were put up, but did not sell. For genuine bark oil 1s 3d per oz. was bid and refused; 3½d is asked for leafy. The exports from Ceylon from January 1 to March 1 were 16,312 oz. to the United Kingdom and 1,063 to Africa.

OIL LEMONGRASS.—No business done publicly today but sales have been made done at 5d per oz for genuine.—*Chemist and Druggist.*

CEYLON TEA IN AUSTRALIA: A SYDNEY MERCHANT'S VIEWS.

Amongst the visitors to Ceylon recently was Mr. Pitt Brown who has been in business in Sydney as a tea merchant for a period of about eighteen years and was on his way to England, this being his first visit to the old country since he left for the Southern Colonies. He arrived here (where he has a nephew in Mr. Stephen Brown of Messrs. Geo. Steuart & Co.) in the end of March by the "Victoria" and resumed his voyage last week by the "Australia." During his stay here he has visited upcountry planting districts, making Hatton and Nuwara Eliya his centres, and he hopes on his return from England to be able to see something of planting in the low-country. At Hatton he met such well-known planters as Messrs. H. Blacklaw, of Strathdon, Mr. Hamlin, of Darrawella, and Mr. Keith Rollo, of Wanarajah, and at the Sanitarium

he went over Scrubs. He next visited Kandy where he made a stay of a few days and no doubt met a number of planters. His trip was one of pleasure, but in Ceylon he had been happily able to unite business with enjoyment; and he was present at one of the tea sales, which was considered to be one of the biggest on record, and purchased some of the Scrubs' broken pekoe. The tea of this estate, he said, could be easily recognised by a boy, who has been only a few months in the tea room, on account of its peculiar earthy flavour, but the strange thing was that he could not discover this flavour on the estate, the explanation probably being that the tea he there saw was fresh off the fire. His impression of the tea market here was that at present the prices were ridiculously high, the Russians having forced up the better grades of whole leaf teas. The market here he considered was just like the wool market in Australia, where they were now selling much wool that used to go to London. The local markets were becoming much larger because, when they found it worth their while, the continental and American buyers went there as they were now doing pretty largely. Ceylon tea, in his opinion, bade fair to be the only tea sought for in Australia. Indian tea had never taken the hold that it did in London and really what we had to do was to oust China tea from the Colonies What struck one here was what was going to become of all the tea that he saw, for miles and miles around him, for although extensions had been stopped there was new tea coming into bearing. Our tea trade with Australia would, he was sure, develop. The only hope remaining for China was to supply the common ration low-priced tea, for Ceylon tea could never be brewed as it was in a galvanized iron bucket over a fire. What the Australians liked was a well fermented tea. When he went to the colonies in 1880 it was nothing but Foochow tea that was in demand; but now that had "taken a back seat" and Ceylons were coming to the front even as compared with Indians. The Ceylon tea was much more suitable for drinking alone and there was a growing taste for it. The amount of choice tea wanted in Australia was really very small, the people there having been so long used to the low-priced China tea. On bulked tea imported into Queensland there was a duty of 6d and on package teas of 8d. All teas imported into Queensland were packed there because of course it was cheaper. When the duty was taken off at Sydney he was one of a deputation of two who waited upon the Treasurer and pointed out to him that it was not the wish of the trade that the duty should be taken off. The Treasurer's idea was that when he took the duty off the people would be able to pay better prices for tea and get a better article. Mr. Brown replied in the negative and he instanced what had taken place in the Channel Islands which was the jumping ground for all the rubbish which could not be sold anywhere else. He was of opinion however that the duty would have to go on again. At the Melbourne Exhibition he met the late Mr. A. M. Ferguson and he has pleasant recollections of his meetings with him.

COFFEE ENTERPRISE IN MEXICO.

However, I was fortunate enough to find Mr. Thos. Christy at leisure this afternoon and willing o give me his views about several matters. In egard to the Coffee Enterprise in Mexico, his report is decidedly unfavourable. One of his sons has just returned from Tapachula, so that the facts he reports are brought up to the most recent date. Mr. Christy, junior, with his brother, who is in Mexico at present, have been located on the neighbourhood of Tacha, the volcanic mountain, and suffered much from fever. Most European residents are leaving the country, Mr. Christy tells me, because it does not answer in any way for them to remain. Though very fine coffee can most undoubtedly be grown, and is grown in Mexico, and prices are good, still the growers find the expenses of production are not covered. The absence of money is great also. So much is this the case that the Japanese Society formed near Tapachula. have been obliged to send their first batch of labourers back to Japan, and are at this moment uncertain whether to continue their present estates, not to speak of opening any new ones. Those estate agents from Mexico, who have been in Europe, visiting different capitals, endeavouring to finance their schemes on the strength of the buildings, fittings, area under cultivation and labour engaged have received no encouragement from German banks, who will have nothing to do with Mexican estates. In Austria, where the true state of matters was not at first known these agents met with more consideration; but after enquiries made at Berlin and elsewhere, the Austrian banks also showed the cold shoulder. In London the only approach to business is that advances are offered on the whole yield, but there is no inclination to buy estates outright.

This, it will be seen is a very different account from that in the prospectus of the Tapia Estate, and

INTENDING COLONISTS FROM CEYLON

would do well to pause and consider ere they proceed further as far as Mexico is concerned. There have been recently some meetings held in London, among those interested to see if nothing can be done to foist from the market the many made up concoctions of so called coffee (French coffee in tins, preparation of Cuban coffee, etc.) and to substitute in their place the pure article freshly roasted daily, but unground. It is felt that once the public had the opportunity of getting the whole coffee pure, these compounds which very often are not coffee at all would soon lose their hold of the consumer. The price at which coffee is now sold is 28s a cwt. which comes out about 3d a pound with 1½d allowed for duty per pound, and 1d for roasting—making the article 5½d a pound at first cost. That this coffee could be retailed at 7d or 8d a pound is already a well acknowledged fact inasmuch as 4,000 lb. weight of it is daily sold in Boston in America at that price, whereas the French and other preparations cost the consumer about 1s a pound.

The merchants who have the matter at heart therefore recently submitted to the Society of Public Analysts who in association with the Chemists and Druggists Company have a department in the Chamber of Commerce, several very pertinent questions on the point. Suppose, said they, a poor farmer who either from his poverty or other causes feeds his cows so ill that the animals give a weak standard of milk, would he not be fined for sending this inferior article of food to market? This the Society at once admitted. And suppose, continued the querists, this bad-milk was found to be used in

Restaurants and Hotels would not the penalty be binding equally in such a case? Then what is the position in regard to coffee? When people ask for coffee, what sort of a mixture do they generally get in answer to their demand? And ought not the vendor to be liable in this case quite as much as the farmer who sells bad milk?

The analogy was obvious, but the Society hedged in an ingenious manner. Government they replied, had given them no instructions on the point, and they had no rule to guide them. Individually they admitted the justice of the question and the difficulty experienced in getting pure coffee, but as a body they were unable to take any steps.

The brokers and merchants however went further. In order to prove that the thing could be done, and that a really splendid beverage could be sold at the price mentioned, they offered to supply several of the large establishments in London with

COFFEE FREE OF CHARGE

if sold as genuine, but their proposal met with but a cool reception. It was too much trouble for the Conservative retailer to be bothered with. A written application was also made to the Army and Navy Stores Company, this establishment being supposed to be one which only looked for a reasonable profit on the goods it supplied, to see if they would be willing to put 28s to 30s pure Brazilian first quality coffee before their customers at 7d to 8d a pound freshly roasted whole beans, the fact to be notified to the London press, so that the public might be made aware of the fact. However, the secretary after consulting with his staff wrote that the Company could not sell coffee at these low prices, and there as I understand the matter stands at present. There is no question that the brokers have got the right end of the stick, but whether they will be able to make progress with it remains to be seen. To get people educated up to buying a pure article at 7d

INSTEAD OF A MADE-UP CONCOCTION

at 1s seems at first sight the simplest thing in the world, but he was so thinks, little knows the Great British public. Once the man in the street has got a notion he will stick to it through thick and thin, and it will be a clever person who can get it out for him again.

PLANTING NOTES.

COCONUT OIL.—Messrs. Lever Brothers (Limited), of Port Sunlight, have a large oil-mill near Sydney, N S.W., where they press coconut oil from copra imported from the South Sea Islands. The oil-cake residue is entirely consumed in the colony.—*Chemist and Druggist*, April 2.

LIQUID FUEL is being introduced largely in England for locomotive engines on the Great Eastern Railway. Thirty-seven engines on that railway are burning oil fuel. The form of the engines is not different but the tenders carry two long cylinders of oil on the top of each side of the tender.—*Indian Witness*.

THE RUBBER ESTATES of Para, Limited, has a capital of £350,000, half in 7 per cent. cumulative and half in ordinary shares of £1 each. The company is formed to purchase and work Para Rubber Estates in the municipal district of Anajas, State of Para, Brazil. The purchase price is £300,000, leaving only £50,000 as working capital.

THE SOWRASHTRA OR SILK-WEAVING COMMUNITY OF MADURA intended holding a Conference at that city during the first week of April. Among the subjects for discussion was a scheme for a textile school in which weaving and dying can be learnt, for, which the leaders of the movement have sought the help of Mr. John Wallace, C.E.

THE NUWARA ELIYA TEA ESTATES COMPANY'S Report reaches us at too late an hour to do more than call attention to the splendid array of figures afforded for yield per acre, average price and profit per acre of the different estates. The average yield is 518 lb. per acre; the average nett price 9·28d., and the average profit per bearing acre £8 10s 11d. The Company have now 2,632 acres in tea out of a total of 3,047.

COCOA.—The allotments and most of the regrets in Tibbles Vi Cocoa were posted on April 3rd, This expedition has been attained by a large staff working in shifts, and by the adoption of an elaborate system on the part of Messrs. Williamson, Murray, and Co., who made the allotment. To all ledger customers, who applied for more than 10 shares, an allotment has been given on a liberal scale, and the bulk of the shares were absorbed by them and traders. Only a small balance remains for the general public.—*Globe*, April 4.

PLANTAIN CULTURE IN CEYLON.—A nativ correspondent writes urging that the larger cultivation of plantains by villagers might well be encouraged by Government, for the reason that there is a big demand for this fruit, and many a man could make a profitable living, who, for the present, resorts very frequently to crime to eke out a living. He makes a rather good suggestion, which is that a Government botanist from Peradeniya gardens might be asked to make a scientific investigation into the system largely followed in the N.-W. Province, of planting up the land between young coconuts with plantain trees. If it can be carried on without impoverishing the soil, he thinks the method should be extended.—Local "Times."

FIJI: A NEW CUSTOMS TARIFF—The "Fiji Colonist and Levuka Gazette," of March 19th announces the introduction of a new Tariff by Governor O'Brien, the main features of which are:—

The increased Revenue to be derived will be exacted mostly from the natives, the Indian Coolies, the Polynesians, the Rotumans, and all the other coloured races who have elected to make Fiji their home, while the European settler is affected only in one or two particulars, tinned meats and biscuits for instance, but it is the Fijian and Coolie who will practically have to pay the piper. The second scheme which suggests itself is, that these import duties constitute as nearly as possible a thorough-paced Protective Tariff. Sugar £4 13s 4d per ton, tea 6d per lb, meats 1d per lb, rice £2 per ton and flour of all sorts £1, while in many minor details the local producer of marketable commodites will find his wares more valuable.

We add a few more items:—

Coffee, chicory, cocoa and chocolate per lb. or reputed package of that weight, and so in proportion for any such reputed weight 3d.

Spirits, of all kinds imported into the Colony, the strength of which can be ascertained by Sykes' hydrometer, and is under proof, per liquid gallon 14s.

Tobacco, manufactured, per lb. 3s.

Tobacco, unmanufactured,

THE YATIYANTOTA CEYLON TEA COMPANY, LIMITED.

Directors:—A. Thomson, Esq., Chairman; Charles Young, Esq.; W. J. Smith, Esq. Managing Agents:—Messrs. Whittall & Co., Colombo. Secretary and Offices:—T. A. Williams, 27, Mincing Lane, London, E.C.

REPORT OF THE DIRECTORS

to be submitted at the First Annual Ordinary General Meeting of Shareholders, to be held at the London Commercial Sale Rooms, 30 to 34, Mincing Lane, London, E.C., on Thursday, the 14th April, 1898, at 11 o'clock a.m.

The diretors beg to submit the balance sheet and profit and loss account for the year ending 31st December 1897.

The net amount at credit of profit and loss account is..		£3,999 5 10
of which the following sums have been observed in paying absorbed at 6 per cent, annum on the preference Shares—		
On 1st July 1897 ..	£900 0 0	
On 1st January 1898 .	1,087 14 10	
		1,987 14 10
Leaving now to be dealt with a balance of		£2,011 11 0

This the directors propose to appropriate as follows:—

1. In payment of a dividend of 2 per cent (free of Income Tax) on the £90,000 Ordinary Capital ..	£1,800 0 0	
2. In writing off the small balance of Preliminary Expenses	71 7 3	
3. In carrying forward to 1898 the balance of ..	140 3 9	
		£2,011 11 0

The crops secured amounted to 1,014,291 lb., being the yield for the full year from Polatagama, New Polatagama, We-Oya, and Walpola; and for nine months only, from the Rondura Group. The plucking area on all the estates was 2,032 acres, but the yield from 478 acres was very small, as the fields to this extent were quite young, and only just coming into bearing.

The quantity of tea sold in the Colombo market was 666,571 lb., and the balance of 347,720 lb. was sold in London,

The cost f.o.b. (or delivered to buyers in Colombo) was 3·91 pence per lb., and the average not realised price of the whole was 4·98 pence per lb.

The result for the year is disappointing, and much below the expectations formed at the time the arrangements were made for placing the Company on a sterling footing. To the lower range of prices which has of late ruled in the Tea market, and to the higher level of exchange between London and Ceylon, this result is mainly due, while last year the cost of production was enhanced in some measure, by the exceptional item of Loss on the Rice supplied to the Coolies, and by abnormal weather which lessened the yield. The average price obtained for the Crop the Directors do not consider satisfactory, but with the ample facilities for manufacture now at the disposal of the respective Managers of the Estates, they look for an improvement in quality which, apart from market considerations, should result in a highrr average being secured in future.

A sum of £700 obtained as premium on the second issue of preference shares has been placed against the preliminary expenses of the Company, tho balance of which (£71 7s 3d), as will be seen above, it is proposed to charge against the profits of last year, thus closing this account.

Up to 31st December last a sum of £10,317 12s 7d was expended on the development of the propertier which amount is made up as follows:—

On planting and upkeep of area not in bearing	£6,693 4 2
On purchase of 34 acres land added to the estates ..	152 12 11
On additions to Buildings and Machinery	3,471 15 6
	£10,317 12 7

In accordance with the terms upon which the properties were, respectively, taken over, the above figures include all expenditure, less crop receipts, from 1st January to 31st March, 1897, in connection with the working of the Rondura group; as also the outlay subsequent to 14th August 1896 (as per Prospectus), on development of the other Estates.

The following are details of the acreage of the Estates as at 31st December, 1897:—

Acreage under Tea.

Estate.	Bearing.	Partial Bearing.	Not Bearing.	Being Cleared.	Total Cultivated	Forest Reserves, &c.	Total Acreage.
Polatagama	665	—	72	50	787	255	1,042
We-Oya	381	16	90	—	487	136	623
New Polatagama	235	—	5	—	240	209	419
Walpola	401	192	228	50	871	133	1,004
Rondura	350	—	169	80	599	631	1,238
Totals	2,032	208	564	180	2,984	1,364	4,348

As mentioned in their circular of 13th February, 1898, the Directors anticipate that the further issue of 800 Preference Shares, therein referred to, will provide all the funds necessary to bring the ahovo cultivated area into full bearing.

The Directors are pleased to be able to report that the latest advices from the Managing Agents are of a satisfactory charactor, and justify the expectation of steadily increasing crops at lower cost of production as compared with that of last year. The yield for the current year is likely to show an increase of 20 to 25 per cent on that of last year, while three to four years heuce, when all the young fields will be of a full yielding agc, a very satisfactory return on the capital of the Company may reasonably be looked for, even under the preseut existing conditions of market and exchange.

Messrs. Cape & Dalgleish, C.A., offered themselves for re-election as Auditors of the Company.—By order of the Board,

T. A. WILLIAMS, Secretary.
27, Mincing Lane, London, E.C., 6th April, 1898.

NUWARA ELIYA TEA ESTATES COMPANY, LIMITED.

SECOND ANNUAL REPORT.

(Annual meeting fixed for April 20 in London.)

The directors beg to submit to the shareholders the balance sheet and profit and loss accouut for the year ending 31st December, 1897.

The surplus shown is £13,584 18s 10d from which falls to be deducted Debeuture Interest, amounting to £1,800, leaving a balance of £11,784 18s 10d. An Interim Dividend free of Income tax, was paid in October, 1897, of £4,761, being at the rate of 6 per cent per annum, and it is now proposed to pay a final Dividend, free of Income tax, at the same rate, making 6 per cent for the year, which will absorb a

further sum of £6,000, and be apportioned as follows:—

Shares Nos. 1—15,870, from 1st Jan. to 31st Dec. 1897, at 6 per cent per annum £9,522 0 0		
Less In'm Div'd 4,761 0 0		
	£4,761 0 0	
,, 15.871—20,000, from 1st July to 31st December, 1897, at 6 per cent per annum	1,239 0 0	
	£6,000 0 0	

Of the balance £1,023 18s 10d, it is proposed to add £300 to the Sinking Fund against the premium of £2,162 15s 2d paid for Leases, bringing the total up to £600; to write off £481 1s 3d, the balance of the formation expenses of the Company, thus closing this account; and to carry forward £242 17s 7d.

The crop of Tea from the Company's Estates amounted to 964,963 lbs. of which all but 23,254 lb. were made at the Company's own factories.

Of other products, 505 bushels of Coffee and 27,338 lb. of Cinchona Bark, were gathered and sold in Colombo.

The cost of production of the Tea crop and placing on Steamer at Colombo was 5·58d. per lb.

The rate of Exchange for the year averaged 1/3 15·32, and the nett price realized for the Tea crop was 9·215d. as against 9·30d. in 1896, a decline which is almost nominal in face of the serions drop in the average price of Ceylon Teas during the year

The following table shows the result of the year's working of each Estate, excluding Hethersett and Denmark Hill, two gardens in the immediate neighbourhood of the other properties of the Company, and which were only acquired as from 1st July, 1897:—

Estate.	Acreage in bearing in 1897. Full.	Partial.	Tea Crop.	Average yield per bearing acre.	Nett price realized per lb tea.	Profit per bearing acre.		
			lb.	lb.	d.	£	s.	d.
Park	161	7	91,285	543	10·06	10	10	7
Kenmare	113	7	58,781	490	9·70	8	7	0
Portswood	260	—	148,561	571	7·58	4	19	0
Naseby	125	27	86,544	565	9·95	10	1	0
Pedro	213	—	131,809	619	8·89	10	18	3
Lovers' Leap	132	44	71,411	406	8·89	5	15	5
Concordia	80	102	83,000	456	10·06	10	4	4
Hillside	137	—	79,762	582	9·90	11	15	7
Court Lodge	302	24	148,070	454	9·25	7	8	7
	1,523	211	899,223	518	9 28	8	10	11

The directors are sanguine that those estates which this year have not given a due proportion of profit per acre will in the future shew better results.

The weather during the season was exceptionally favourable for growth of leaf, and the tea crop considerably exceeded the estimate.

On the other hand the rate of Exchange continued adverse throughout the season, to the extent of about ¼d per lb. of tea as compared with the average of 1896, while the loss on rice owing to the famine in India, amounted to a further ¼d per lb. of tea. These causes have materially affected the result of the season's working. It is not, however, expected that this year there will be any deficit in the rice account.

A new issue of shares, amounting to £41,300, was made as from 1st July last, £17,300 of which was subscribed for at £2 per share premium, the balance being issued the vendor in payment of the purchase price of Hethersett estate.

The present acreage of the Company's estates is constituted as follows:—

	Acres	Acres
Tea in full bearing	1,819	
Do do leased lands ..	90	
Tea, in partial bearing ..	393	
Tea, not yet in bearing ..	330	
Total land under cultivation with Tea		2,632
Jungle, Patna and Scrub, and Fuel Trees, &c. ..	415	
Total acreage ..	3,047	

During the year Mr. Alexander Thomson accepted a seat on the Board as an additional Director, and Mr. Wharram Megginson has also been elected in place of Mr. C. R. Robson, who resigned his seat in September last.

The Directors retiring are Mr. C. A. W. Cameron and Mr. H. St. J. Oscar Thompson, who being eligible offer themselves for re-election.

London, 31st March, 1898.

THE STANDARD TEA COMPANY OF CEYLON LIMITED.

Directors:—Alex. Brooke, 25, Fenchurch Street, London (Chairman); Robt. Kay-Shuttleworth, Slough Place, Cuckfield, Sussex; Norman W. Grieve, Harbury, Forest Row, Sussex; William Rollo, 5, Stanley Gardens, Kensington Park, W.

Secretary:—A. Trafford Brooke.

Agents in Ceylon:—George Steuart & Co., Colombo.

Offices:—25, Fenchurch Street, London, E.C.

SEVENTH REPORT OF THE DIRECTORS TO THE SHAREHOLDERS.

To be submitted at the general meeting, to be held on Thursday, 21st April, 1898, at noon, at the offices of the Company.

The Directors submit Statement of Accounts to 31st December, 1897.

The Profit and Loss Account shows a profit on the working of the Estates in Ceylon of £12,332 18s 0d., which with amount brought forward from last year, less interest and home charges, shows a sum of £11,720 12s 3d available for division.

In July, 1897, the Directors, under the powers entrusted to them, distributed an interim Dividend for the six months ending 30th June, 1897, of five per cent. (10 per cent. per annum), absorbing £2,975.

They now recommend a Dividend at the rate of ten per cent. (making fifteen per cent for the year) absorbing £5.950; the placing £1,000 against depreciation; £1,000 to reserve; and the carrying forward to the next year £795 12s 3d.

Coffee has contributed to the results to the extent of about 440 cwt. of £1,900, less expenses of cultivation and marketing.

The average Exchange for the Company as drawers in Colombo was 1/3 15·32 against 1/2 19·32 in 1896, and 1/1½ in 1895. The difference in 1897 compared with 1896, unfavourably affected the accounts to the extent of about £1,200. The Loss on Rice, that is the difference between the price at which it is supplied to the Estate Coolies and the price paid for it, is equivalent to something not far off 1 cent per lb. on the season's output of Tea. The Tea from the Company's Uda Pussellawa properties sold during 1897 in Mincing Lane averaged a higher price than any Ceylon Estate or group of Estates producing above 100,000 lb. Still, Tea prices have been lower this last season than previously, those for the Uda Pussellawa Estates 1¼d per lb. nett lower, and for the Maskeliya ⅝d per lb. lower, and it is only the young land coming into bearing that gives opportunity to the Company to keep up the dividend.

Coneygar, the purchase of which was announced in the last report, is receiving careful attention, and the Directors are satisfied that this will eventually prove a good investment.

The Company's Properties at the close of 1897, were 3,465 acres, with 1,680 acres of Tea considered in full bearing, viz.:—

in Uda-Pussellawa—		
St. Leonards, Coneygar	901 acres.	399 acres tea bearing
Liddesdale	814 do	140 do
Eskdale	240 do	208 do
Gordon	386 do	154 do
Tulloes	419 do	165 do
in Up. Maskeliya—		
Gouravilla and Up. Cruden	705 do	614 do

There are also 507 acres tea in partial bearing, and some 295 acres in addition planted with tea. On St. Leonards, Liddesdale and Gordon Estates there is

still some coffee interspersed through the tea. Mr. Norman W. Grieve, the Director, who retires by rotation, being eligible, offers himself for re-election.

PEPPER: GOVERNMENT ESTATES IN KUALA KANGSAR, STRAITS SETTLEMENTS.

On the Chigar Galah pepper estate permanent new coolie lines and a go-down have been built and a tank for making white pepper. About half the estate was manured with guano, with excellent result. The bulk of the *lallang* is now got rid off, and the whole estate is fairly clean. The crop was sent direct to London, where it fetched top market price: viz, 6⅝d. per pound for white and 3¼d. per pound for black pepper. The revenue derived by sale of pepper, fruit and young trees was $2,848·82, and the expenditure $2,833·45. This includes $600 stolen, and $225 given to Syed Musa (not a fair charge on the estate) while the expenditure on buildings will not recur.

Cicily has been on our hands, and visited regularly until handed over to Sir Græme Elphinstone at the end of the year for $25 per annum. He has since sub-let it for $250 per annum, and he still keeps the Government pepper gardens.

The Kuala Kangsar gardens have been enlarged by a field of six acres planted with nutmegs, and six more acres under cocoanuts and other fruits. All the old trees have been thoroughly manured, and the grounds kept up. Fruit and seedlings were sold to the value of $1,665·50, and cattle to the value of $281·63. Total revenue $1,957·15.

The herd of cattle have been improved by the introduction of new blood.

A nursery of Trang pepper has been planted up with cuttings direct from Trang, and looks very well. Many thousand Para gutta seeds and seedlings have been sold. All the Para gutta trees have been trapped, with good results, and samples sent to London are valued at 6s. 9d. to 3s. per pound. We did not sell any gutta in 1897, so have a lot still in store. The expenditure amounted to $3,449·72.—*Report for 1897 by Mr. H. Berkeley.*

THE TICK PLAGUE AMONGST HORSES.

The most stringent regulations are in force in Madras regarding the quarantine of all shipments of horses from Australia, and particularly from Queensland, owing to the fear of bovine tick fever being introduced. The following is the text of a letter from the Government of India to the Madras Government upon the subject: The fact that, during the last shipping season, a shipment of horses was landed at Madras, and a part of them railed to Bombay, which had been brought direct from a tract in Queensland, where the tick plague is so prevalent that the Colonial authorities do not allow stock from within it to cross its borders, has directed the attention of the Government of India to the possibility of the new and virulent disease being introduced at any moment into India from abroad. Early measures will be taken to obtain the necessary legislative authority to prohibit or control the importation of live-stock from infected areas. But in the mean while, it is very desirable that all shipment of Australian horses landed at ports in the Madras Presidency should be carefully watched with a view to minimising the danger of the pest being introduced into this country. Having regard to the terribly fatal nature of the disease, and the doubts as to its existence in India and as the immunity of Indian cattle, the Government of Madras are assured of the cordial co-operation of the Governor in Council, in adopting such precautionary measures as may be possible, pending the grant of fuller powers by the Legislature.—*Asian.*

THE ALLIANCE TEA COMPANY.

Yesterday morning I was at the annual meeting of the Alliance Tea Company of Ceylon. The accommodation of 9, Fenchurch Avenue, is not so extensive as for instance at Winchester House, or Cannon Street Hotel, and the reduction of the dividend had the effect of bringing together sufficient shareholders to fully occupy the sitting accommodation provided. I noticed Mr. Bowden Smith, Mr. W. Mackenzie, Mr. E. M. Rossiter and others. Mr. John Bell-Irving occupied the chair, supported on either side by Mr. E. J. Young and Mr. R. S. Corbett. Mr. Bell-Irving was quickly on his feet and said:—The Directors regret the poor result of the season's operations, but this arises from circumstances beyond their control, and is not in any way caused by a falling-off either in the crops or the quality of the tea produced on the various estates. In most instances there has been an increase in the production, but, whilst the estates producing high-grown teas such as Thornfield, Gleneagles, Uda Radella, and Calsay, have shewn very profitable results, Aberdeen and Luccombe have practically only paid their way, owing to the high exchange and the poor prices ruling last season for the class of teas produced by these properties. The estimates for the present year to which reference is made in the report, lead us to hope for good profits from all the estates, particularly as every effort is being made to keep down expenses, to increase the outturn, and to improve the quality of the tea. Even if exchange remains at its present high level, and only the average prices of last season are realised, there should be a distinct improvement in the year's profit. You are aware of the issue of Debentures we have recently made. A reference to the balance sheet will show you that whilst we have a total capital in shares, premium and debentures of £105,838, the Capital Expenditure amounts to £112,000, and Advances to Coolies £3,280, and it was essential, therefore, that additional funds should be raised to cover this excess. The funds thus provided, however, are sufficient for our requirements, and we shall not I hope, have occasion to raise further money for some time to come. I should mention, however, that the estimates for the present year provide for a further Capital Expenditure of about £1,500, and that we have had to arrange for a new factory for Uda Radella. These Capital outlays are serious items, but they are necessary for the proper upkeep of the Company's properties, and for the increasing crops of tea, and the expenditure will, I think, prove to be justified by results. I might add that on last year's working there was a loss on rice supplied to coolies of £612, which represents almost as 1 per cent. dividend on the share capital of the Company. We have again been at a disadvantage this last year in consequence of the high rate of exchange that has ruled throughout the year. As shewn in the Balance Sheet the average rate has been nearly 1d per rupee above 1896, and 1d in exchange makes a difference to us of 2 per cent on the share capital of the Company. In our report we give you particulars of the total acreage of tea in bearing, but these figures are slightly misleading, and we should have shewn separate columns of the tea in full bearing, in partial bearing, not in bearing, and tea clearings. These figures are as follows:—

	Acres.
Total tea in full bearing ..	2,563
„ „ in partial bearing ..	105
„ „ not in bearing ..	61
„ „ clearings	75

Without these details before you, some explanation would be required of the item under capital expenditure of tea clearings, £612 10s 2d, this expense

being in respect to the field outlay on the acreage not in bearing. He concluded his speech as usual with the remark that he would be glad to hear any remarks any shareholder might wish to make.

Mr. W. MACKENZIE rose and disclaiming any wish to cavil at the accounts or the year's results, asked, in connection with the purchase of Dunkeld estate, what the borrowing powers of the directors were. He was informed they were up to half the purchase price of the properties. He then remarked that he thought that the acquisition of estates in Ceylon should be submitted to the shareholders and receive their approval. That he thought £60 per acre for a property yielding 400 lb. per acre was high, and he would be glad to know if the board contemplated any further purchase. The Chairman informed him that the board had no further purchase in view, and that the intended acquisition of Dunkeld was mentioned in last year's report. Mr. Mackenzie's remarks met with some approval amongst those in the room, and he sat down expressing himself perfectly satisfied with the replies he had received.

Mr. E. M. ROSSITER, whom I was glad to see looking so fit and well, then made some remarks upon Coast Advances. The amount, £3,280 17s 1d., showing under this head in the balance-sheet, was a heavy one. As an old Ceylon coffee planter he had been accustomed in his day to 10s per head. He did not know what labour force the Company employed, but he thought that this amount at 5 per cent. would yield something towards a dividend. [Mr. Rossiter had evidently not studied the Ceylon papers in these latter days, or he would know that things have changed a great deal since his day.]

The CHAIRMAN suitably replied, and then Mr. CORBETT rose to second the adoption of the report and accounts. But Mr. RICHARD WADE JENKINS, a shareholder, said he was anxious to make a few remarks upon an addition to the board. On enquiry he was informed that the articles provided there should be not less than three nor more than five members of the board. He said he thought it would be to the advantage of the Company if a thoroughly practical man were added to the board, and he wished to propose that Mr. F. H. Wigin be elected. He thought this a most advisable measure, for, as an instance, however much knowledge Mr. Corbett might possess of Ceylon, he was not well acquainted with estate management. He suggested moreover that this addition to the board be made without increasing Directors' fees which he considered liberal. This class of reduction of expenses immediately results are not so satisfactory is well-known, and more than one shareholder expressed his disapproval of the suggestion. The articles, however, provide that the Chairman takes £150 per annum, and the other Directors each £100 per annum, surely moderate enough remuneration for a Company of the size and standing of the "Alliance." It was suggested to Mr. Jenkins that it was usual in a matter of this sort that notice should be given to enable all the sharehlodors to have a voice. But Mr. Jenkins persisted, and asked for the articles to be referred to. It was eventually decided that Mr. Jenkins should give the necessary notice. Mr. Rossiter seconded Mr. Jenkins' motion during the discussion.

The CHAIRMAN closed the proceedings by saying it was no pleasant to come down from 10 to 6 per cent, but he hoped for better things next year.—Cor. of the local "Times" April 26.

TRAVANCORE TEA ESTATS COMPANY, LIMITED.

The first ordinary general meeting of the shareholders of this company was held at the offices of the company, 20, Eastcheap, E.C., on Monday. The chair was occupied by Mr. W. Mackenzie, chairman of the board of directors.

The CHAIRMAN :—I presume you will take the report and accounts as read. The copy of accounts sent to all of you has told you that the directors have called this meeting in order to submit the general balance-sheet and profit and loss account to end of September, 1897. Various reasons, the chief being difficulties in obtaining transfers of properties purchased since the company was formed, account for the delay in calling you together. You are aware that this company was formed essentially as a development company—to open up extensive areas of land in Travancore, and plant them with tea. The table embodied in the report shows you, that of a total of 6,490 acres which we own, only 975 acres are in bearing, while 1,022 acres were planted in 1896 and 1897, and we are endeavouring to plant 1,300 acres this year. If we succeeded in getting this work done we shall have 3,297 acres of tea with almost as much more land for future extensions. Being a development company the ordinary shareholders are in the position of men who have joined together to buy and open land as tea planters, and of course, must expect to wait some time for their profits. The directors, however, could have paid a very fair dividend on the ordinary shares had they not been advised that the profits earned before registration, £1,150, were not available for dividend purposes. On £20,500 the amount paid up during the six months to end of September, £1,150 would pay 10 per cent. You will observe also that £421 has been carried forward, so that we begin the New Year with £1575 on hand, of which £1,150 has been placed to reserve. Another point you will observe is that, although only at end of our first year, there is nothing due for preliminary expenses, every penny being charged up and paid. In this you will see the conservative policy of the great company under whose auspices we were launched. We are further indebted to the directors of that company, who are also directors of this company, in that they have waived all claims to directors' fees for this first year. I may mention that although subsequent purchases have given us 975 acres in bearing our plucking area, last year, for which you have the report, was only 644 acres. About our future prospects I shall be in a better position to speak when I return from a visit I am to make immediately to our properties, but it is our hope and aim to bring into bearing and fully equip the 3,300 acres which we expect to have planted this year at a cost of somewhat less than £30 an acre, and have the remaining 3,000 acres for nothing. The estates Tangakul, Granby, Tekkadi, Inji Cadu, and Blocks 13 and 14, aggregating 2,293 acres, have been purchased since the prospectus was issued. I now move the adoption of the report and accounts.

The resolution was seconded by Mr. David Reid and carried unanimonsly.

On the motion of Mr. Haslam, seconded by Mr. R. B. Reid, Messrs. Harper Brothers, chartered accountants, were appointed auditors.

The proceedings closed with a vote of thanks to the chairman, proposed by Mr. Pettit and seconded by Mr. Haslam.—*H. and C. Mail*, April 8.

A SHARP CRITICISM.—"The Rubber Estates of Para," Limited, is one of those companies which wise investors should (says the *Daily Mail*) leave alone. The capital is big, and there is no independent evidence as to the value of the property to be acquired. It is all a question of estimate. The profit is estimated, the production is estimated, the revenue is estimated, and the extent of the estate itself is estimated. As the purchase price is to be £300,000, and as the estates are out in Brazil, something more than mere estimate is wanted to permit of an investor risking his capital. The course taken at the end of the prospectus in quoting an opinion from the *Daily Mail* on the rubber trade as being in favour of this particular company is not, we hope, likely to mislead many people; but, in case it should, we hasten to announce that we regard the "Rubber Estates of Para," as a highly speculative and most unpromising undertaking.

Correspondence.

To the Editor.

PLANTING IN MYSORE AND THE NORTH MYSORE PLANTERS' ASSOCIATION.

Koppa, Mysore, March 19.

DEAR SIR,—I enclose copy of proceedings of the annual general meeting of the North Mysore Planters' Association, of which I have had the honor of being elected President. Some of my old friends during my stay in Ceylon, from 1875 to 1883, in Ambagamuwa, Nitre Cave, and for the last five years at Wattekelle, Madulkelle, may be glad to hear of me, though a good many have gone. I see many still mentioned in the weekly *Observer*, which I have taken and read regularly since I left Ceylon.

We are not having a very rosy time of it with coffee just now, owing to very late rains, chiefly in May; during the past two years crops have been very poor, and, with the aid of that arch-fiend leaf-disease, coffee is having a hard fight of it. We are now looking anxiously for rain, and if we get an early and good dose of it, crops should be good all round as places are in capital heart and having had practically nothing taken out of them for two years should make us the *amende honorable* this year. Exchange is, of course, hitting us very hard and with the price of coffee fallen from 15 to 20 per cent. Prospects for the coming year are a trifle depressing, but we must hope for the best.—I am, dear sir, yours very truly, E. C. BOLTON.

THE RECENT IMPORTATION OF TROUT OVA.

Ceylon Fishing Club, Nuwara Eliya, March 22.

SIR,—It may interest those of your readers who are members of the Fishing Club to know that the last lot of trout ova, imported by the ss. "Gera," have proved a great success. We have already hatched about 11,500 out of 20,000 eggs, and we shall probably get about 1,500 more. The alevins are strong and healthy, and we ought to get from 9,000 to 10,000 fry from them, which will be a most seasonable addition to our streams. This shipment proves that if only the eggs are properly and carefully treated on board ship, the hatchery here (under the very capable management of Mr. Elhart) can deal with them very efficiently. Messrs. Wickwar and Farr, who are both going home, have kindly promised to do their best to make such arrangements as to packing and shipping as will secure a few more successes like the present.—I am, sir, your obedient servant, S. M. BURROWS, Hon. Secretary.

TEA FACTORIES AND SITES.

25th March.

SIR,—In reply to "An Indian Tea Planter" whose letter appears in your issue of the 23rd inst., I would advise him, either to become a "Ceylon creeper" for a short time, or to pay for professional advice. As a practical planter of over 30 years experience, I shall be glad to visit his estate, and give him the best advice as to factory site, etc., for a moderate remuneration.

I will add a word of warning "free, gratis, for nothing." *Don't rush in for expensive buildings and "up to date machinery" till you find your yield of tea per acre will afford the expense.*—Yours faithfully,

A CEYLON PLANTER.

DEHORNING CATTLE.

DEAR SIR,—Can you or any of your readers tell whether the practice of dehorning cattle has ever been resorted to in Ceylon with the object of improving their condition. This is what the "Queenslander" writes on the subject:—"The manager of a large herd of cattle in the north, who secured one of the dehorning implements imported some two years ago, reports that he has used it very freely in his herd, and with the very best results. He states that dehorning has the effect of quietening the cattle, and his experience is that dehorned cattle fatten more rapidly than horned cattle. In the Western and North-western districts, where cattle are trucked to the coast, dehorning will be found of very great advantage; but when cattle-owners have made up their minds to adopt the practice, the operation will be much more effectively and less painfully performed on calves, either by means of the knife, or by caustic potash." Dehorning has also been used with good effects for years on some of the cattle runs in the Hunter River district.—Yours truly, INTERESTED.

[We have never heard of "Dehorning" cattle in Ceylon: only of the horns of buffaloes being blunted in some districts.—ED. *T.A.*]

No. II.

DEAR SIR,—Dehorning cattle in India and Ceylon is practised much and is a common thing, you will be surprised to learn. Dehorned cattle, it is quite true, fatten very *quickly* and on *ordinary food*. The practice has been introduced many years ago into Ceylon principally by the cattle-dealers from India. Dehorning is also resorted to, to show that cattle are younger than they really are! Sheep, goats and other cattle are dehorned, without giving any pain to the animals operated upon merely by gently applying for two or three days heat to the horns, which are previously covered with human hair or thin fibre to secure from excess of fire. The old horns come off very easily, while the root of the young horn (reddish in appearance) remains and by the time the horns have grown, the animal becomes fit for table and is in prime condition, generally. I should much like to know, through the columns of your valuable paper, "the how, the why and the wherefore" from some scientific and qualified authority. The Patriach of Dimbula,—the late Mr. Wm. Smith—knew all about this I think. Can our amiable "Vet," Mr. Sturgess not enlighten us on the point. Many would "like to know, you know." The blunting of the horns of ferocious buffaloes by Sinhalese is also, as you say, in vogue, particularly throughout the Kandyan country, but that does not fatten them. It is only for protection from being gored by them while working the animals. MUDALIYAR.

No. III.

DEAR SIR,—There may be said to be three degrees of dehorning or dishorning: (1) cutting off the external horns by means of the saw or shears; (2) removing the shell of the horn and leaving the core described by your correspondent "Mudaliyar," and (3) totally doing away with the horn, root and all. The third method is of course the most effectual and has resulted in

the production of hornless or polled breeds. It is generally performed when the animals are very young before the development of the external horns, the rudiments of which are quickly and with very little pain removed with a sharp knife. Another way of destroying the horn is by making cross incisions into the corny tissue where the horns afterwards appear and inserting a small piece of caustic potash which has the effect of destroying the root of the horn. Where cattle are kept in enclosed yards, or large numbers are herded together, the operation of dehorning has the result of quieting the animals and so indirectly causing them to improve as fat stock or milch cows. There was some time ago a dead set against dehorning as a cruel practice; but the operation is now looked upon as more humane than otherwise where goring and worrying may be expected to take place among crowded confined herds.—Yours truly,

X.

STOCK AND USEFUL HINTS.

Rosewood, Nuwara Eliya, April 16.

DEAR MR. EDITOR,—I enclose a slip taken from a newspaper, it might be useful to some people. I shall thank you to publish the same in your local paper.—Yours faithfully, E. J. T.

DEHORNED CATTLE.

Nowadays most of us accept the belief that cattle ought not to have horns. It is best to breed them off. There are as good animals of the beef breeds that are polled, as those that have horns. It is quite time that horns should be bred off all the milk breeds. If this has not been done, the next best thing is to prevent the horn starting to grow on the calf. The operation does not take five minutes. Use common concentrated lye, such as women use for softening water and making soap. While the calf is less than ten days old is the proper time. Simply wet the bump where you expect the horn, and rub on as much powdered lye as will equal three grains of maize Do not wet elsewhere. Let the calf alone hereafter. The scabs will come off, and the hair grow out as nicely as on a natural poll.

SHELTER BENEFICIAL TO STOCK.

Calves will not thrive if they are gradually being transformed into roast veal under the burning rays of the sun. There is no species of farm live stock that pays better for being made comfortable, and the absence of protection from the summer heat is felt equally as much by the animals as by man. Every paddock should have its place of refuge, either a thick clump of trees or a shed open on all sides, placed on the highest point in the paddock, to allow the breeze to sweep through it. Protection in summer is almost as necessary as in winter, and is a duty that might be urged upon the sense of right of the stock-owner. Those amenable to appeals of this kind will need no urging to provide this needed protection.

THE CUCKOO (SINHALESE "*COVAH*.")

SIR,—The advent of the cuckoo (Sinhalese "*Covah*" in the Western Province of Ceylon, is an annual occurrence. It generally takes place by the middle of April or the beginning of May; but this year they have come in unusually soon. Early in the morning of the 14th inst., the hills around Maligakande re-echoed with the welcome "*Coohoo*" "*Coohoo*," which told us unmistakably that the cuckoo had arrived, much to the discomfort of our wily friend, the crow! It is said that the cuckoo has no architectural proclivities, it does not care to build, but is content with what the crow does in that direction —it stealthily gets into the crow's nest, lays its eggs and departs; leaving the hatching of her eggs, the care and feeding of her offspring to *pater* and *mater* crow. Very often the deception is detected and the interlopers are ejected, to this is attributed the sparse numbers in the cuckoo tribe. We have two varieties of the cuckoo in Ceylon. The black and the spotted (the kalu and pulley covahs of the Sinhalese). Fine specimens of both are to be seen in Mr. Sanmugam's beautiful aviary at Devon House. C.

ARTIFICIAL MANURES (BONES) IN AGRICULTURE: USEFUL INFORMATION.

Colombo, April 2nd.

DEAR SIR,—With reference to your article on the value of bones in agriculture, the following table, showing the results of some experiments carried on at home, may prove of interest :

Out of 100 parts of phosphoric acid there was removed by the first year's crop :

Superphosphate	63.
Bone-meal	7.

Out of 100 parts of phosphoric acid left by the first crop, there was removed by the three succeeding crops :

Superphosphate	30.
Bone meal	13.

The phosphoric acid in raw bones is now generally recognized to have the same manurial value as that of insoluble mineral phosphates. If bones exercise a better influence, as they undoubtedly do, it is due to the nitrogen they contain, and to nothing else. Out here bones ought to have a slightly superior value as our climate has a decided influence on the decomposition of organic matter, of which bones are largely composed, but this more favourable action is to a great extent counteracted by the coarser state in which bones are used.—I am, dear sir, yours faithfully, A. BAUR,

The Ceylon Manure Works.

MANURING OF TEA *vs.* CHEAP PRODUCTION.

DEAR SIR,—The difficulties besetting the Planting Industry have received such prominence of late, that it may not be out of place to examine whether there are not means to extricate the same from the present unsatisfactory position. Such a resource—lying within practical reach of every planter—I hold a proper system of Manuring to be.

Before referring to the practical side of the question, it may be well to note how this subject of manuring is thought about at home and out here. There, manuring has been generally adopted, because it has been recognised to be the only means of making cultivation pay, whilst in Ceylon manuring is looked upon rather as a luxury, which is resorted to only reluctantly and by few. What then, it may be asked, is the difference between manuring at home and manuring out here? The conclusion is simple. In Europe manuring is and can be carried on economically owing to the progress of and aid given by agricultural chemistry, whilst in Ceylon manuring has always proved expensive, owing to want of guidance and of knowledge as to its proper principles.

If manuring in Ceylon has not proved the success it ought to be, considering its exceptionally favourable climatic conditions, and if, in consequence, it has not been more generally resorted to, it is simply because the system of manuring is bad. It is not the planter, who is responsible for this. He cannot look after his business and be an agricultural chemist besides. But, as in other countries whose welfare is largely dependent upon agriculture, it should have been the duty of Government to keep a staff of agricultural chemists entrusted with the solution of matters of practical interest to the planter. Instead of that, agriculturists have been left to their own resources, and it is not surprising therefore that Ceylon should not have benefitted by the progress made in agricultural

chemistry during the past 20 years. The planter has recognized the necessity of returning to the soil certain plantfood ingredients removed by csop; but with regard to the most imrtant and most costly of them, he has not been made aware that it is largely supplied by natural sources. The consequence is that thousands and thousands of tons of nitrogenous manures are still yearly being put into the soil, for which there is but little necessity. And what consideration has been given to the other necessary manurial constituents? Very little and that little (except by a few) has been given without proper discrimination. It is well-known that, for its successful growth, the plant is just as much dependent upon one as upon the other plantfood constituent. It cannot live on the ready nitrogen first and on phosphoric acid (the yet undissolved bones) later on. Yet the most soluble nitrogenous manures are being applied along with the most slowly acting phosphatic manures. No wonder therefore that plants never do get the full benefit of those large applications of nitrogen, and that manuring should prove a costly operation. To recognize the necessity of applying phosphoric acid and yet to apply it only in a slowly available form, as in raw bones, means nothing else than to make the plants' growth dependent on the latter. It is therefore indispensible that phosphoric acid and potash should be applied liberally and only in a form readily available for the plants in order to enable the latter to make full use of the natural sources of nitrogen or of any nitrogen applied artificially.

In my second circular explaining the principle of the fertilizers recommended by Mr. John Hughes, for Ceylon Tea, I touched upon the natural sources of nitrogen and considering the importance of the matter I may be permitted to refer to the subject again. By last mail I received a Report published under the auspices of the French Minister of Agriculture, in which the fixation of atmospheric nitrogen has been most amply demonstrated. I have already pointed out that certain conditions are necessary to induce nitrification (the formation of nitrates by micro-organisms), of which warmth, moisture, and the presence of oxygen may be stated as the most important. In Europe nitrification is intercepted during the cold season, a good deal of the nitrates that are formed during summer and more particularly during autumn, get lost during winter through drainage and percolation, and in spring the soil is not only particularly deficient in nitrates; but owing to the lethargic state of the micro-organisms the formation of nitrates is going on at its slowest just when the growing vegetation stands most in need of it. That is why it has been found necessary to assist the growing vegetation by an artificial supply of nitrates, in the form of nitrate of soda. It had, however, been discovered that if some soil is taken from the field in autumn and during winter maintained in a warm room, where, it is kept moist by the addition of water and occasionally stirred up, the formation of nitrates went on uninterruptedly. Some French agricultural chemists decided to give this lesson a practical application. For this purpose a certain number of experimental plots were set aside and planted. One series was manured with cattle dung and in addition with 2 cwt. of nitrate of soda (containing 15 per cent of nitrogen) per acre. The other series received an equal quantity of cattle dung and in addition 2 cwt. of nitrifying earth per acre. This nitrifying earth, as explained above, was nothing else than natural soil taken from a field in autumn, and maintained during winter in a state favorable for nitrification by being kept in a warm room, where it was occasionally stirred up and kept moist by the addition of water. These experiments were first undertaken in 1896, repeated in 1897, conducted independently at different places and with different crops. During their growth the plants which were thus differently manured, shewed no difference in appearance, and when the produce was taken from the fields it was found that in most instances a better crop was obtained from the plots which had received this nitrifying earth than from those which had received the nitrate of soda. To still further demonstrate the influence which this nitrifying earth had on vegetation, two plots were set aside and planted. One received an application of 2 cwt. of nitrate of soda and the other of 2 cwt of nitrifying earth without any other manure being added, nor had the two plots been manured the previous year. The results again justified expectations, for the crop from the field which had received the two cwt. of nitrifying earth exceeded by about 10 per cent the crop from the field which had received the two cwt. of nitrate of soda (which latter was equal to an application of five cwt. of best white castor cakes per acre). This favorable action of the nitrifying earth is not to be attributed to the insignificant quantity of nitrates introduced into the soil, but to the intervention of the micro-organisms, which, being maintained in full activity during winter, continued their work of fixing the nitrogen from the atmosphere and of rendering it available for the plants. If, however, they can succeed at home in doing away with the necessity of applying special nitrogenous manures why should not the same be possible out here where there is no winter to intercept nitrification? With such a damp climate, even temperature, and well-distributed rainfall, it may be taken that the most favourable conditions for nitrification are fulfilled by nature; and those who in spite of this continue to apply large quantities of nitrogenous manures do so uselessly and entirely against their interests in a monetary sense. Therefore let those who want good crops and who desire to make their cultivation pay go in for manuring liberally with phosphoric acid and potash, which ingredients are almost always deficient in soils and they will reap the benefit of the natural sources of nitrogen. Instead of saying I cannot afford to manure, they will, by adopting the right principle, find that, as at home, it will pay them handsomely to do so. It is not the cost, but an injudicious selection of manures, which makes manuring an expensive item.

In his climate the Ceylon Planter has a most powerfull ally, and if he will only take advantage of it, he will be able to hold his own: and it will not be for him, but for his competitors in the North of India, in China, and Japan, to fear the effect of low prices—I am, dear sir, yours faithfully,

A. BAUR,
The Ceylon Manure Works.

Colombo, April 4th, 1898.

No. II.

SIR,—In my last letter I drew attention to the natural sources of nitrogen, which under our climatic conditions render the application of large quantities of nitrogenous manures unnecessary. I have pointed out that we owe these natural sources of nitrogen to micro-organisms living in the soil which fix the nitrogen of the atmosphere and convert into nitrates the organic nitrogen already present in the soil. The conditions favourable for nitrification are equally favorable for the fixation of the atmospheric nitrogen and consist in warmth, moisture, &c. When these conditions are fulfilled the micro-organisms acquire an extraordinary activity and it has been found that even without the aid of nitrogenous manures, the nitrates thus formed are usually in excess of the requirements of the most exacting crop. Unfortunately these nitrates are not capable of being fixed in the soil and cannot be stored up for future use as is the case with phosphoric acid or potash. Any excess or any nitrates that are not taken up by the plants immediately are carried off and get lost through drainage and percolation. Thus when the conditions for the existence of these micro organisms cease to be favourable, the formation of nitrates diminishes in proportion, a scarcity of nitrogenous food

is brought about and very soon we find that the growth of the plant is arrested. This is exactly what happens here in dry weather. We are apt to attribute the want of growth to want of water for the plants. But we forget that if it was actual want of water for the plants, the leaves of the latter would fade and drop off. The true explanation is this. We know that plants act like pumping machines. By their transpiration they throw back into the atmosphere the water that has fallen to the ground; they cause the soil to dry up, and with the drying up the conditions favorable to the performance of the functions of these micro-organisans disappear. At this stage even the largest provision of nitrogen fails to do any appreciative good, since the micro-organisms are unable to perform their function of converting the nitrogen into nitrates, the form in which nitrogen is taken up by plants. Therefore, before these large and expensive applications of nitrogenous manures are resorted to, which we have seen may be superfluous at one time and useless at another, would it not be well first to attend to the conditions required by these micro-organisms? This can be done by increasing the absorbing and retentive powers of the soil for water. The planter has already recognised this necessity by keeping the soil free from weeds, those powerful evaporators of water. He ought now to go a step further (which some have already done,) and loosen the soil, either by turning, forking or cutting holes and filling them in again, in order to increase the capacity of the soil for holding water and to facilitate the circulation of air containing the oxygen, which is another condition necessary to sustain the functions of these micro-organisms. A soil thus worked has been found to generate as much as three times the to amount of nitrates produced by a soil left itself.

But there are yet other means at the disposal of planters to preserve moisture in the soil. I have said already that plants may be looked upon as powerful pumping machines. It has been found that plant leaves often transpire in the space of one hour as much as their own weight in water and that generally they transpire from 233 to 912 lb. of water for every pound of plant tissue formed. What this means everybody can find out by multiplying this amount by the weight of leaves removed by crop. This transpiration has been found to be regulated by the amount of plant-food in the soil. Thus whereas a plant with a sufficient amount of nourishment in the soil transpires 250 lb. of water for every 1 lb. of plant tissue formed, the same plant transpires 800 lb. of water when left to grow in poor soil. It is clear therefore what an advantage it is to keep the plants liberally supplied with properly constituted fertilizers in order to prevent excessive transpiration and thus to keep the moisture in the soil where it is needed during the dry months.

The sooner the planter realizes the fact that nitrogen is not the food for plants but nitrates, the formation of which is dependent upon the function and activity of micro-organisms and that he will have to look to the conditions of life for the latter in order to get the benefit of the former,—the sooner will he arrive at a due appreciation of what constitutes soil fertility and the better will he be able to make his cultivation pay.—I am, dear sir, yours faithfully,

A. BAUR,

The Ceylon Manuring Works.

April 23, 1898.

CAMPHOR CULTIVATION IN CEYLON

Government Botanic Gardens, Hakgala,

Nuwara Eliya, 6th April, 1898.

DEAR SIR,—Referring to your question as to what is being done with camphor cultivation in Ceylon, I may add the following to what I wrote you on the 11th of February last. Wishing to satisfy myself that solid camphor existed in the leaves and twigs, of even very young plants, I sent a small bundle of prunings, from plants planted out at the end of 1895, to Mr. S. A. Owen of Messrs. W. Jordan & Co. of Lindula, who had very kindly undertaken to make the experiment for me. I am pleased to state that he has been very successful in extracting solid camphor from them; and as this of general interest to planters, I shall be much obliged if you will be good enough to publish Mr. Owen's letter in an early issue of your paper.

The prunings from an average plant 28 months old as grown here, weigh from 10 to 12 lb.

I have a good many plants that want pruning, and if applied to before the end of this month, April, I shall be very glad to supply 10 or 20, or 35 lb. prunings to any person wishing to make the experiment for himself.—I am, dear sir, yours faithfully, W. NOCK,

Superintendent, Government Botanic Gardens, Hakgala.

The following is Mr. Owen's letter, Talawakele, March 30th, 1898.

Dear Mr. Nock,—Thanks for the parcel of camphor prunings duly received. I have made several experiments. The following is the account of methods employed and results.

(1) Took about 7 lb. of mixture of leaves, twigs and small branches and gently simmered with about 2 gallons of water for 3 hours. Result: a strong smell of Campor pervaded the bungalow and a small quantity of Camphor *Oil* collected on the surface of the water but no solid Camphor appeared.

(2) Selected the thickest of the branches (averaging about an inch in diameter) and cut these into small pieces about 4 lb. in all. These chips were put into an empty kerosine tin, and this tin was placed inverted over another kerosine tin partly filled with water and the joints between the two were luted around to make it steam-proof. The upper tin had a circular hole cut into the top part, and this hole was fitted with a cork and the cork was provided with a glass tube about 2 feet long communicating with a condenser. Heat was applied to the lower tin and soon after water began to boil, solid Camphor commenced to form in the tube and a little while after the latter became blocked. The steam now forced a passage through the various joints and so the remaining Camphor was carried into the air thus spoiling this trial.

(3) A gallon iron kettle was packed with leaves and small twigs together with about 2 pints of water. The cover of the kettle was luted on and the spout fitted with a cork, while a long glass tube proceeded from the cork to a condenser. A short time after the steam commenced to flow, solid Camphor began to form in the tube until the latter was at length blocked to a considerable distance; there was in consequence a loss of Camphor as in previous experiments, but not so much as the tube was cleared by the application of a spirit flame which caused the Camphor to melt and run down. As the result was so promising I determined to carry out the same experiment, with a definite quantity of material, as below.

(4) Packed the kettle with $1\frac{1}{2}$ lb. of leaves and twigs as before with same amount of water and modified the arrangement so that no blocking could occur. Applied heat gradually and kept it up for five hours. At the end of this time the sides of the

condenser were coated with camphor, and small lumps were floating in the water which distilled over. All the camphor was collected carefully and dried between bibulous paper (to absorb most of the adhering oil). It then weighed 55 grains, which is equivalent to 12 ounces to the cwt. or 15 lb. to the ton.

I think the results very encouraging, as the leaves and young parts of the camphor tree contain but a very small proportion of camphor compared with the trunk-wood. Indeed I believe that in Formosa and other camphor-producing countries it is customary to altogether discard the branches and leaves and use the mainwood only.

I should think that planters who have young camphor trees coming on here in Ceylon, would find it well worth their while to utilise their prunings—especially if firewood is available and cheap, as this latter item would be practically the only expense, beyond the small amount of labour required and the initial expense of a still; which latter could be easily extemporised out of almost any kind of large iron vessel to which heat could be applied. As the camphor tree is a long while coming to maturity, considerations of this kind ought to be borne in mind.

I have pleasure in enclosing a small sample of the camphor obtained. As you will see it has a rather dirty appearance due to unavoidable impurity and the sample smells of camphor oil, but these are easily got rid of in the process of refinement. I also enclose a small sample of the same camphor partly purified by sublimation.

You are, of course, very welcome to make what use you like of this account of these small experiments, whether by publication or otherwise. No doubt it would be encouraging to those who have gone to the expense of planting up camphor trees to know that there *is* camphor in our locally grown trees. I have heard of one or two misgivings as to whether the soil and climate here would favour the formation of camphor in the tree.

The trees are cut out recklessly in Formosa and other countries, while the consumption of the article increases yearly. Enormous quantities being used in the manufacture of "celluloid" and other goods of this kind.—I am, yours faithfully, (signed)

S. A. OWEN.

THE POSITION OF TEA: THE NEED FOR NEW PRODUCTS.

SIR,—Now that many of us have conquered our characteristic false modesty and have openly expressed the opinion that tea cultivation is and for some time has been on many estates an unprofitable occupation, it seems not unnatural to enquire what we propose to substitute for it in the event, by no means improbable, of no relief being afforded to producers in the matter of exchange.

Already we hear the more enlightened of our coolies, anxiously enquiring what their future prospects are when tea is no longer cultivated, and though they look at the great silver question from a different standpoint, who can say that the problem is not already of sufficient importance to demand immediate and earnest enquiry? Although we may consider the Exchange Question as the rock which most seriously endanger the future of the Tea Industry, as well as all others, it is not the only danger to be faced. Leaving out of consideration the great risks of over-production with so much young tea soon coming into bearing and the failure to secure new markets, with the competition of scientific manufacture in China, Java and Japan, we have to reckon on the gradually lessened yield from our older tea fields which the spread of insect-pests is certain to bring about. Efforts have been made in despatches and in public speeches to promulgate the idea that the industry is absolutely safe from any danger of this kind, but it is time that the bubble was pricked and the true state of affairs generally admitted.

What about the ravages of *Helopeltis* in the lower district, the frequent appearance of red spider in many others and the prevalence of scale insects in nearly all? Does the wholesale burning of tea-prunings on many estates on which firewood is by no means plentiful mean nothing? Is it not a fact that tea is *apparently* being killed out on some estates by a boring beetle closely allied to the species which has for some years been attacking the most weakly cacao trees in every district? We are reaping the benefits again, as with coffee, of our indiscriminate *mono-cultivation*, and the only remedy lies, as before, in the cultivation of *New Products* and their substitution for all inferior tea.

But what are we to grow? Shall we go on drifting as before until one or more of us hit upon some profitable substitute and then all follow like a flock of sheep?

Again and again you have urged the cultivation of Fibre-yielding Plants, but the only result has been the spasmodic planting of a few roots of rhea: the Ceylon planter is sitting on the fence waiting for his brothers in India and the Straits to show him that rhea fibre will pay! Our indigenous fibres have been wholly neglected and nothing has been done with *Sisal*, with *Phormium tenax* or other plants beyond experiments which have shown clearly that they can be grown as profitably in Ceylon as in any other country.

Other industries have been urged in your columns, one at least for the past fifteen years and latterly camphor, but this should have been taken up some years ago as it takes so long before it brings in any substantial return.

In the lower districts tea can be planted up with Para Rubber and Coconuts,—a good deal has already been done in this direction—, but at higher elevations what are we to substitute where tea is likely to be no longer profitable?

We have become so imbued with the idea that any cultivated product in Ceylon must be a *permanent* one that it will be a difficult matter to hit upon any that will fulfil this requirement, and in this, paradoxical though it seems, lies our hope of salvation. We want an *annual* product, or, if possible, a variety of such, in order to avoid the evils attendant on mono-cultivation, and the Planters' Association might at this juncture invite Essays on the subject and so make an effort to save the Colony from a recurrence of the troubles which followed on the failure of coffee and cinchona.—Yours faithfully, SPERO MELIORA.

THE TEA PLANTING INDUSTRY:

REDUCTION OF EXPENDITURE:

LONDON AND COLOMBO CHARGES MUST COME DOWN.

London, April 8.

DEAR SIR,—Those in England interested in the Ceylon tea industry read with great interest the articles published in the Ceylon papers on the necessity for a reduction of working expenses to meet the altered conditions of the industry, and it is gratifying to see that Agents and others are equal to the occasion and have already taken steps for retrenchment.

But reductions, as in the coffee crisis in the early eighties, must be general and the difficulty be grappled with in Colombo and London as well as on the estates. That there is room for cutting down in "the Colombo and London charges" will be admitted from the following scale of charges elicited by a few planting shareholders at a meeting of the "Imperial Ceylon Tea Estates, Ltd." this week:

Receiving and shipping tea in Colombo 1 cent per lb. plus export duty, and cess, etc.
Commission on disbursement 1 per cent.
London Agents' commission 2 „

When worked out these charges seem out of all proportion to the nett profits of 1897, thus:—

Receiving and shipg. at 1ct. ex 1s 3½d= roughly	£365
Commission on disbursements at 1 %= „	141
Lon. Agents' com. on gross sales 2 %= „	485
General charges	70
Directors' fees	350
	£1,411
Nett profit for 1897	„ 3689

Directors of some Rupee Companies have waived their fees for the past year in view of the unfavourable results and this example might be followed by others to the extent of making a reduction in fees in proportion to the decrease in the profits.

Tea is shipped, as almost everyone knows, at half a cent a pound, and London charges for selling one per cent.

With tea prices lower than in 1897 and exchange steady at about 1s 4d, shareholders must bestir themselves and let their voices be heard at the general meetings and retrenchment in every possible form be insisted on.—Yours faithfully,

AN UNFORTUNATE SHAREHOLDER.

SILK CULTIVATION: A NEW INDUSTRY FOR CEYLON.

10th April.

DEAR SIR,—When I wrote you some fifteen months ago on this subject, I had had no opportunity of making trials with the castor-oil silkworms at any high elevations and merely expressed the opinion that its cultivation would pay well in all the lower districts. Since then trials have been made at 4,000 and 5,000 feet with satisfactory results. In each case, though handicapped by a short supply of leaf and by want of accommodation for large numbers, the worms have been reared without any casualties and have produced very good cocoons.

A brood takes longer, of course, in a cold climate than in the lowcountry where eight 'crops' are yielded in a year, but this would probably after a little while be compensated for by a finer yield of silk. The castor-oil plant grows luxuriantly at all elevations, but the leaves are smaller in a cold district.

Trials have also been made at the elevations above mentioned with the Japanese and the Bengal mulberry-feeding silkworms with results which show that their cultivation will pay better than tea has done for a long time past on many estates. The object in view hitherto has been to improve the *stamina* of each species by careful selection. As regards the cultivation of the mulberry-feeding worms, those who contemplate taking it up should begin by planting mulberry trees amongst their tea and in other suitable places, as the leaf is not fit for feeding silkworms until the trees are two or two and a half years old.

The Colombo School of Agriculture might be of use in starting the cultivation of the castor-oil silkworms in the lowcountry.—Yours faithfully, B.

STERLING TEA COMPANIES AND TEA PRICES.

Dimbula Estate, Kotagala, April 15.

DEAR SIR,—Will you allow me to point out that your "Editorial Note" headed "Sunnygama Tea Estates Company" is not perfectly correct. As you may see from Messrs. Wilson, Smithett & Co.'s Annual Circular for 1897, Queensberry estate sold in that year in London about 391,500lb. tea at an average of 8½d per lb. against an average of 8d per lb. in 1896 for a somewhat smaller quantity. In both years the whole produce of the estate was sold in London; the estate belongs to the Kotmale Valley Estates Co. of Ceylon (Ltd.), which has a sterling capital and its offices in London. This Company paid last month an interim dividend of 4 per cent on its ordinary stock, being at the same rate as for the corresponding period of last season. I quite agree with you that at present, Colombo prices for certain classes of tea are considerably above those ruling in London. The question is how long it will last?—Yours, etc

J. ROYDON HUGHES.

CANAIGRE—A TANNING PRODUCT—AND NOT IN MUCH REQUEST.

SIR,—*Re* your correspondent's remarks on Canaigre, this plant undoubtedly merits well-directed trials on upcountry estates, judging by the rate of yield I am told Mr. Nock has obtained at Hakgala gardens. Unfortunately, however, it is a tanning product, and other sources of tan not requiring cultivation are practically unlimited. Probably it is for this reason that, according to the *Australian Tropiculturist*, Agricultural Departments have failed to force the Canaigre on the attention of Australian farmers, some of whom regard it as being no better than the common dock, which it closely resembles.—Yours,

ENQUIRER.

PLANTIG NOTES.

TIMEHRI "THE JOURNAL OF THE ROYAL AGRICULTURAL AND COMMERCIAL SOCIETY OF BRITISH GUIANA." —Contents for December, 1897:—Papers—Some Neotropical Birds, by C. A. Lloyd; Abortive Publications, by the Editor; Agriculture in 1829, by William Hilhouse; Our Peasant Population—Their Past Condition and Future Prospects, by Seaforth M. Bellairs; The Boa Constrictors, by J. J. Quelch; B. Sc. Lond., C.M.Z.S., Among my Books, by J. G. Cruickshank; Occasional Note; Reports of Society's Meetings, from July to December, 1897.

ERGOT IS A DISEASE OF GRASSES, which is different from smut. It attacks the flower, and assumes the form of large grains, which are in this case also the resting stage of the disease, remaining quescent through the winter months until the grasses, corn, &c., are flowering when spores are formed in the ergot to be carried by the wind to attack the flowers. Smut or ergot in corn and hemileia in coffee cannot be considered analogous.—*Mr. Wm. Fawcett, B.Sc., F.L.S., Jamaica.*

DEAFNESS. An essay describing a really genuine Cure for Deafness. Ringing in Ears, &c., no matter how severe or long-standing, will be sent post free.—Artificial Ear-drums and similar appliances entirely superseded. Address THOMAS KEMPE, VICTORIA CHAMBERS, 19, SOUTHAMPTON BUILDINGS, HOLBORN, LONDON.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

Colombo, May. 3rd, 1898.

EXCHANGE ON LONDON:—Closing Rates *Bank Selling Rates*:—On demand 1/3 15-16; 4 months' sight 1/3 31-32; 6 months' sight 1/4

Bank Buying Rates:—Credits 3 months' sight 1/4 3-116 to ¼; 6 months' sight 1/4 5-16 to 11-32. Docts 3 months sight 1/4 7-32 to 9-32; 6 months sight 1/4 11-32 to ⅜. Indian Bank Minimum Rates 11 % to 13 %. Local Rates 2 o/o to 3 o/o Higher.

COFFEE:—Parchment on the spot per bushel R13·50 Plantation Estate Coffee, f.o.b. on the spot per cwt. R78·00. Liberian parchment on the spot per bus. R4·50. Native Coffee f.o.b per cwt. R45·00 nominal

TEA:—Average Prices ruling during the week Broken Pekoe per lb. 43c. Pekoe per lb. 34c. Pekoe Souchong per lb. 28c. Broken mixed and Dust, per lb. 19c. Averages of Week's sale.

CINCHONA BARK;—Per unit of Sulphate of Quinine per lb 5c. 1 to 5 %

CARDAMOMS:—Per lb R2.37

COCONUT OIL:—Mill oil per cwt. no quotation. Dealers' oil per cwt. R13.37 Coconut oil in ordinary packages f.o.b. per ton R30C.00

COPRA:—Per candy of 560 lb. R45.00 nominal

COCONUT CAKE:—(Poonac) f.o.b. (Mill) per ton, R80·00

Cocoa unpicked and undried, per cwt. R48.50

COIR YARN.—Nos. 1 to 8 { Kogalla R17.25 / Colombo R16 00

CINNAMON:—Nos. 1 & 2 only f.o.b. 60c. / Do Ordinary Assortment, per lb 53c. } out of season

EBONY.—Per ton

PLUMBAGO:—Large Lumps per ton, R440 / Ordinary Lumps per ton, R410 / Chips per ton, R270. Dust per ton, R180 } Tendency upwards

RICE.—Soolye per bushel, R 3.40 to 3.75
" per bag, R8.75 to 9.77
Coast Calunda per bushel, R3.65 to R4.00
Muttusamba per bushel, R4.00 to R5.00
Kadappa and Kuruwe per bushel, R3·60 to 3·70
Rangoon Raw 3 bushel bag:—R9.50 to 9·75
Kara R3.25 to 3.35

FREIGHTS.

LOCAL MARKET.

(By Mr. James Gibson, Baillie St. Fort.)

Colombo, May 4th, 1898.

Estate Parchment:—per bushel R12·50 to 13·00
Chetty do do R9·50 to 10·00
Native Coffee / do F. O. B { per cwt R32 to 35·00
Liberian coffee:—per bush R3·0 to 4·00
do cleaned coffee:—per cwt R28·00 to 30·00
Cocoa unpicked per cwt R42·00 to 44·00
do picked do R45·00 to 48·00
Cardamoms Malabar:—per lb. R1·50 to 1.75
do Mysoore do R2·00 to 2·25
Rice Market List
Soolai per bag of 164 lb. nett R9·00 to 9.75
Slate or 1st quality soolai:—per bushel R3·60 to 3.75
Soolai 2 & 3rd. do do do R3.40 to 3.55
Coast Calunda 3·50 to 4.05
Muttusamba R4.50 to 4.75
Kuruvee R3.60 to 3.75
Kazala R3·30 to 3·35
Coast Kara R3·67 to 3 80
Raw Rangoon Rice per bag R9·00 to 9.75
Cinnamon. per lb No 1 to 4 00·44 to 00·51
do do 1 to 2 00·53 to 00·57
do Chips. per candy R46 00 to 62·00
Coconuts. Ordinary per thousand R36 to 37
do Selected do R37 to 40
Coconut Oil per cwt R13·25 to 13·50
do F. O. B. per ton 300·00 to 305·00
Copra per candy
Kalpitiya do R42.00 to 43·75
Marawila do R38·00 to 41.75
Cart Copra do R34 to 36
Poonac Gingelly. per ton 98 to 100
Coc nut Chekku do R95 to 98
Mill (retail) do R82 to 86
Cotton Seed do R73 to 77
Satinwood per cubic foot. R2.00 to 2.25
do Flowered do 5.50 to 6.00
Halmilla do 1.90
Tuun Pali do R1.00 to 1·12
Palu. do 1.20 to 1.30
Ebony per ton R75 to 1.75
Kitul fibre per cwt R30·00
Palmyra do do R9·50 to 21·50
Jaffna Black Cleaned per cwt R18 to 20
do mixed do R16·50 to 17·50
Indian do R9.50 to 14·50
do Cleaned do R12.50 to 21·50
Sapanwood per ton R45·00
Kerosine oil American per case. R5·75 to 5·81
do Bulk Russian per tin R2·30 to 2·35
do Russian per Case scarce
do Sumatra in Case R4.70 to 4·75
Nux Vomica per cwt R5 to 6
Croton Seed per cwt R35 to 40
Kapock cleaned f o b do 27 to 37
do unpicked do 5

Plumbago per ton, according to quality:
Large lumps 280 to 450
do " 250 to 440
do Chips 120 to 280
do dust 76 to 180

CEYLON EXPORTS AND DISTRIBUTION.

1897-98.

COUNTRIES.	Coffee cwt Plantation	Coffee cwt N'tive	Coffee cwt Total.	Cinchona. 1898 B'nch & Trunk lb	Tea. 1898 lb.	Tea. 1897 lb	Cocoa cwt.	C'moms lb.	Cinnamon. Bales lb	Cinnamon. Chips lb.	Coconut Oil 1898 cwt	Coconut Oil 1897 cwt.	P'bago 1898 cwt.
To United Kingdom ..	3334	..	3334	215088	30065976	31819545	22889	124275	201982	105403	24862	19513	48304
,, Austria	..	...	..	..	5600	1755	...	..	...	33600	1607	1369	..
,, Belgium	25	..	25	..	5710	2375	250	..	7500	36400	401	..	15311
,, France	401	..	401	3345	9359	18529	..	..	22000	31416	..	..	474
,, Germany . ..	..	..	..	..	120510	54130	399	49569	245675	206694	1212	..	20561
,, Holland	39	.	39	..	5676	3705	96	..	10000	..	..	..	..
,, Italy . ..	..	-	..	..	2340	795	..	..	39000	79968	..	..	...
,, Russia	..	..	..	..	496134	102683	..	..	..	..	...	..	...
,, Spain	..	..	..	...	12150	3600	..	..	65000	11200	..	..	..
,, Sweden	1	..	1	..	13434	7699	...	..	..	..	..	..	101
,, Turkey	..	..	..	..	9706	1790	...	555	...	..	...	..	..
,, India	14	..	14	..	186302	181133	3	7532	...	...	32933	39643	147
,, Australia	933	50	983	..	4652391	4291122	...	..	4700	6720	239	979	812
,, America	100	..	100	63188	564405	219241	104	2712	111187	22400	14706	10018	61471
,, Africa	..	..	..	724	141709	57680	..	1120	..	..	..	..	..
,, China	200	..	200	2026	297351	114614	138	720	20000	..	1791	204	..
,, Singapore	1	..	1	..	14489	8050	293	450	..	..	32737	15555	20
,, Mauritius	..	..	..	..	...	...	..	..	..	..	..	..	..
,, Malta	..	..	...	...	60579	13850	..	..	..	..	..	..	..
Total exports from 1st Jan. to 3rd May. 1898	5048	50	5098	284371	36663813		24172	286933	727044	533801	110488		147201
1897	6840	95	6935	273569	36902296		15153	189553	684839	435099	87281		109064
1896	7678	222	7900	441370	34513332		15383	132514	618591	340022	89211		123928
1895	25497	1129	26626	276220	31774393		14723	169684	532676	314504	110428		75006

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Prices Current, London, April 6th, 1898.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ...	44s a 100s
Zanzibar & Hepatic ,,	Common to good ..	11s a 76s
BEES' WAX, ,,		
Zanzibar & Bombay { White ,,	Good to fine ...	£7 2/6 a £7 10s
Zanzibar & Bombay { Yellow ,,	Fair ..	£6 5s a £6 7s 6d
Madagascar ,,	Dark to good palish ..	£6 a £6 15s
CAMPHOR, China ,,	Fair average quality ...	95s
Japan ,,	,, ,, ,,	97s 6d
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	3s 2d a 3s 6d
	Middling, stalky & lean	2s 9d a 3s
Ceylon.—Mysore ,,	Fair to fine plump ..	3s a 4s 4d
	Seeds ...	2s 6d a 3s 2d
,, Tellicherry ,,	Good to fine ...	2s 9d a 3s 1d
	Brownish ..	2s 6d
,, Long ,,	Shelly to good ...	2s 8d a 3s 10d
,, Mangalore ,,	Med brown to good bold	3s 9d a 4s 4d
CASTOR OIL, Calcutta ,,	1sts and 2nds ...	3¾d a 4½d
Madras ,,	...	3½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ..	27s a 42s 6d
CINCHONA BARK.—		
Ceylon lb.	Ledgeriana Chips ...	3¼d a 5d
	Crown, Renewed ..	4¼d a 8d
	Org. Stem .	1½d a 6¾d
	Red Org. Stem...	3d a 4⅝d
	Renewed ...	3⅜d a 5⅞d
CINNAMON, Ceylon 1sts	Ordinary to fine quill...	8½d a 1s 11d
per lb. 2nds	,, ,, ...	7½d a 1s 8d
3rds	,, ,, ...	7d a 1s 6d
4ths	,, ,, ..	6d a 1s 3d
Chips	,, ,, .	2¾d a 3½d
CLOVES, Penang lb.	Dull to fine bright bold	6d a 1s
Amboyna ..	Dull to fine ..	4½d a 5¼d
Zanzibar and Pemba }	Good and fine bright ..	4d a 4¼d
	Common dull to fair ..	3⅝d a 3⅞d
Stems ..	Fair ..	2d
COCULUS INDICUS cwt.	Fair ..	8s 6d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	110s a 124s
	Middling to fine mid ..	103s a 108s 6d
	Low mid. and low grown	90s a 100s
	Smalls ...	70s a 85s
Native ,,	Good ordinary ...	35s a 80s
Liberian ,,	Small to bold ...	30s a 45s
COCOA, Ceylon ,,	Bold to fine bold ...	74s a 80s
	Medium and fair ...	69s a 73s
	Triage to ordinary ...	60s a 68s
COLOMBO ROOT ,,	Fair to good ..	22s a 40s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair .	£10 a £16
FIBRE, Brush ,,	Ord. to fine long straight	£10 a £21
Cochin ,,	Ordinary to good clean	£15 a £21
Stuffing ,,	Common to fine ..	£7 a £9
COIR YARN, Ceylon ,,	Common to superior .	£12 a £26 10s
Cochin ,,	.. .. very fine ...	£12 a £34
do. ,,	Roping, fair to good ..	£10 10s a £15
CROTON SEEDS, sift. cwt.	Dull to fair ...	50s a 61s
CUTCH ,, ,,	Fair to fine dry ...	9s 3d a 32s 6d
GINGER, Bengal, rough ,,	Fair ...	19s
Calicut, Cut A ,,	Good to fine bold ...	78s 6d a 105s
B & C ,,	Small and medium ..	35s a 76s
Cochin Rough ,,	Common to fine bold ..	17s 6d a 28s
	Small and D's ...	17s a 21s
Japan ,,	Unsplit ...	16s 6d a 17s 6d
GUM AMMONIACUM ,,	Sm. blocky to fine clean	30s a 50s
ANM, Zanzibar ,,	Picked fine pale in sorts	£10 7/6a £13 12/6
	Part yellow and mixed	£8 2/6 a £10 10s
	Bean and Pea size ditto	70s a £7 12/6
	Amber and dk. red bold	£5 10s a £7 10s
	Med. & bold glassy sorts	80s a 100s
Madagascar ,,	Fair to good palish ...	£4 8s a £8
	,, ,, red ...	£4 5s a £9
ARABIC E. I. & Aden ,,	Ordinary to good pale	40s a 62s 6d
Turkey sorts ,,		65s a 85s
Ghatti ,,	Pickings to fine pale ...	12s 6d a 40s
Kurrachee ,,	Good and fine pale ...	52s 6d a 57s 6d
	Reddish to pale selected	30s a 40s
Madras ,,	Dark to fine pale ...	27s 6d a 35s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	40s a 80s
	Ord. stony and blocky	30s a 37s
KINO ,,	Fine bright ..	12s 6d a 15s
MYRRH, picked ,,	Fair to fine pale ...	70s a 82s 6d
Aden sorts ,,	Middling to good ..	33s a 57s 6d
OLIBANUM, drop ,,	Good to fine white ...	34s a 60s
	Middling to fair ...	20s a 31s 6d
pickings ,,	Low to good pale ...	11s a 12s 6d
siftings ,,	Slightly foul to fine ...	9s 6d a 14s
INDIARUBBER, Assam lb	Good to fine ...	2s 4d a 2s 11½d
	Common to foul & mxd.	1s 6d a 2s
Rangoon ,,	Fair to good clean ...	2s 3d a 2s 11d
Borneo ,,	Common to fine ..	1s 6d a 2s 2d

	QUALITY	QUOTATIONS.
INDIARUBBER, *(Contd).*		
Java, Sing. & Penang lb.	Foul to good clean ..	1s 2¼d a 2s
Mozambique ,, {	Good to fine Ball ..	2s 9½d a 3s
	Ordinary to fair Ball	2s 6d a 2s 8½d
	Low sandy Ball ..	1s 1d a 1s 4d
	Sausage, fair to good	2s 6d a 2s 11d
	Liver and livery Ball..	2s 6d a 2s 10d
Madagascar ,, {	Fr. to fine pinky & white	3s a 3s 1d
	Fair to good black ..	2s a 2s 4d
	Niggers, low to good..	1s 6d a 2s 4¾d
INDIGO, E.I. ,,	Bengal--	
	Shipping mid to gd violet	4s 2d a 4s 9d
	Consuming mid. to gd.	2s 6d a 3s 5d
	Ordinary to mid.	1s 6d a 2s 5d
	Mid. to good Kurpah...	2s a 2s 6d
	Low to ordinary ..	1s 4d a 1s 10d
	Mid. to good Madras..	1s 3d a 2s 4d
MACE, Bombay & Penang per lb.	Pale reddish to fine ..	2s a 3s
	Ordinary to fair ..	1s 7d a 1s 11d
	Pickings ..	1s 4½d a 1s 5½d
MYRABOLANES, Madras } cwt	Dark to fine pale UG...	4s 6d a 6s
	Fair Coast ..	4s 9d a 5s
Bombay ,,	Jubblepore ...	4s a 7s
	Bhimlies ...	4s 3d a 9s
	Rhajpore, &c. ..	3s 9d a 7s
Bengal ,,	Calcutta ..	3s 6d a 5s 6d
NUTMEGS— lb.	64's to 57's ...	3s a 3s 2d
Bombay & Penang ,,	110's to 65's ..	1s 3d a 2s 9d
	160's to 130's ..	6d a 1s 1d
NUTS, ARECA cwt.	Ordinary to fair fresh...	12s a 22s 6d
NUX VOMICA, Bombay	Ordinary to middling...	4s a 5s 6d
per cwt. Madras	Fair to good bold fresh..	7s a 7s 6d
	Small ordinary and fair	5s 6d
OIL OF ANISEED lb	Fair merchantable ...	7s 3d a 7s 6d
CASSIA ,,	According to analysis..	4s 9d a 6s 3d
LEMONGRASS ,,	Good flavour & colour...	5d
NUTMEG ,,	Dingy to white ...	3¼d a 4d
CINNAMON ,,	Ordinary to fair sweet...	5d a 1s 6d
CITRONELLE ,,	Bright & good flavour..	1s 0½d a 1s 2d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 15s
	,, wiry Mozambique	10s a 11s
PEPPER - (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	3⅞d a 4d
Singapore ..	Fair	4 1-16d
Acheen & W. C. Penang	Dull to fine	3⅝d a 4⅜d
PLUMBAGO, lump cwt.	Fair to fine bright bold	20s a 28s
	Middling to good small	15s a 19s
chips ,,	Dull to fine bright	10s a 15s
dust ,,	Ordinary to fine bright	5s 6d a 10s
SAFFLOWER ,,	Good to fine pinky ...	80s a 85s
	Middling to fair ..	60s a 70s
	Inferior and pickings ..	50s a 55s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£20 a £35
Chips ,,	... ...	5s a £3
Madras, Logs ,,	Fair to good flavour ..	£30 a £50
Chips ,,	Inferior to fine ..	£4 a £8
SAPANWOOD Bombay ,,	Lean to good ...	£4 a £5
Madras ,,	Good average ..	£4 a £5 nom.
Manila ,,	{ Rough & rooty to good	£4 10s a £5 15s
Siam ,,	{ bold smooth...	£6 a £7
SEEDLAC cwt.	Ord. dusty to gd. soluble	60s a 70s
SENNA, Tinnevelly lb	Good bold green	3¾d a 4½d
	Fair middling medium	3d a 3¾d
	Common dark and small	1¾d a 2½d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's { D's and B's { Small ...	£4 10s a £6 12/6
Mussel ,,	Small to bold ...	£1 5s a £3 10s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	12s 6d a 14s 6d
per cwt. Madras	Stony and inferior ..	4s a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy {	16s 6d a 23s 6d
TURMERIC, Bengal cwt.	Fair ...	13s 9d
Madras ,,	Finger fair to fine bold bright	18s a 19s
Do. ,,	Bulbs ..	12s a 13s
Cochin ,,	Finger ..	13s a 14s
	Bulbs ..	7s 6d
VANILLOES— lb.		
Mauritius and Bourbon } 1sts	Gd. crysallized 3½ a 9 in.	18s a 26s
2nds	Foxy & reddish 4½ a 8 ,,	13s a 20s 6d
Seychelles 3rds	Lean and inferior ..	7s a 11s 6d
VERMILION lb.	Fine, pure, bright ...	2s 2d
WAX, Japan, squares cwt	Good white hard ...	37s

THE
AGRICULTURAL MAGAZINE,
COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for May :—

Vol. IX.] MAY, 1898. [No. 11.

SEASON REPORTS FOR MARCH.

WESTERN Province.—Paddy. Preparations for Yala in progress. Fruits scarce, also vegetables except in the Colombo district, Rainfall very deficient, and interfered with preparations for paddy cultivation. No. cattle disease.

Central Province.—Paddy. Maha harvest over in most places; outturn and prospects good. Rainfall deficient, 1·89 in, in Matale. No disease among cattle.

Northern Province.—Paddy. Kalapokam harvest in progress. Cattle plague in Putukudiyiruppu and a disease known as "Munanginoi prevails among goats in the Mannar district. Little rain, ·83 in. in Jaffna, ·22 in. in Mannar.

Southern Province.—Paddy. Preparations for Yala crop in progress, but somewhat retarded by the drought. Health of cattle good. Rainfall at Galle ·73 in.

Eastern Province.—Paddy. Preparations for Pinmari crop under tanks in progress, the Munmari crop is reported fair. Rainfall ·75 in. in Batticaloa. No cattle disease reported.

North-Western Province.—Paddy. Maha harvest on; prospects generally good. Preparation for Yala commenced in some parts. Murrain prevails in the Kurunegala district (but is on the decrease), also in some villages of the Chilaw district. Rainfall in Puttalam on six days, and measured 3·45 in.

North-Central Province.—Paddy. Maha crop reaped and yield good. Rainfall at Anuradhapura, 1·17 in, Murrain prevails among cattle, but it is not widespread.

Province of Uva.—Paddy. Maha cultivation going on. Some early sown fields in Welassa are withering for want of rain. Fruits plentiful and cheap. Health of cattle good, except for a few cases of murrain in Dambagalla Korale.

Province of Sabaragamuwa.—Paddy. Maha crop being harvested in most parts, prospects good, outturn very good in the Kegalle district. Some foot and mouth disease in Beligal Korale.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF MARCH, 1898.

1	Tuesday ..	·01	16	Wednesday ..	Nil
2	Wednesday ..	Nil	17	Thursday ..	Nil
3	Thursday ..	·35	18	Friday ..	Nil
4	Friday ..	·18	19	Saturday ..	Nil
5	Saturday ..	·76	20	Sunday ..	Nil
6	Sunday ..	·38	21	Monday ..	Nil
7	Monday ..	Nil	22	Tuesday ..	Nil
8	Tuesday ..	Nil	23	Wednesday ..	Nil
9	Wednesday ..	Nil	24	Thursday ..	Nil
10	Thursday ..	Nil	25	Friday ..	Nil
11	Friday ..	Nil	26	Saturday ..	Nil
12	Saturday ..	Nil	27	Sunday ..	Nil
13	Sunday ..	Nil	28	Monday ..	Nil
14	Monday ..	Nil	29	Tuesday ..	Nil
15	Tuesday ..	Nil	30	Wednesday ..	Nil
			31	Thursday ..	·01
			1	Friday ..	Nil
				Total ..	1·69

Greatest amount of rainfall in any 24 hours on the 5th, ·76 inches.

Mean rainfall for the month ·05 in.

Recorded by A. H. AHMAT.

AGRICULTURAL SHOWS.

Agricultural Shows are everywhere recognised as a powerful factor in the agricultural education of the people.

We have lately been perusing a communication made by a farmer to an English Exchange, in which the writer states the many ways in which he derived material benefit by attending a Show of the Royal Agricultural Society in the provinces? And if the English farmer with the ready means of communication available to him and the facilities he has for deriving information through the press and other ways, is prepared to confess that there is so much good in Agricultural Shows, it will be confessed that to the village cultivator of Ceylon, living in remote parts of the interior of the Island, with little opportunity of hearing or reading anything calculated to improve his agricultural knowledge, the benefits derivable from Shows must be incalculable. The educational influence of Shows is in many ways greater than that of the written words of a book or newspaper or the spoken words of a teacher or lecturer, since they provide object lessons which always leave a lasting impression on the mind. Again, these Shows are important mediums for the dissemination of knowledge, for visitors do not simply look at what is to be seen without getting all the information that is to be gained with regard to the means of producing the exhibits so strikingly set before them.

But for bringing about the best results there must be some system in holding Agricultural Shows. What we mean is that a programme of these Shows should be once and for all decided upon, and everybody should be well acquainted with the details, while, what is of most importance, the Shows should be held at regular intervals, and if possible at different centres. There will thus be healthy competition which is often made impossible by the fact that a Show is frequently sprung upon the agricultural community after many years. Various interesting facts are made known by Shows, such as the best season, elevation, &c., for producing the best results with different crops, the comparative merits of produce raised under different conditions, the period of growth of plants, the effect of manures—facts which are often lost sight of in ordinary cultivation.

It is a matter for congratulation that H.E. the Governor is in favour of Agricultural Shows being held in the colony, as is to be inferred from the fact that there is so much activity being displayed in this direction of late. We should expect that a marked influence and improvement for the better will before long be discernable in the quality and scope of agricultural practice among native cultivators,—a result greatly to be desired.

HOW TO TELL THE AGE OF NEAT CATTLE.

The age of an animal may be ascertained by the teeth until it reaches the age of six years, after which time the horns are the only guide. Cattle cast no teeth until they reach the age of two years, when they get two new teeth; at three years they get two more, and every succeeding year two, until five years old, when they are termed "full-mouthed," although, strictly speaking, they are not "full-mouthed" until they reach the age of six years, because the two corner teeth are not matured until that period is reached.

The age may also be determined by the horns; but in some cases the most enlightened judge is deceived, as the horns may be scraped or filed in such a manner as to deceive any person.

At the age of two years the horns are without wrinkles; but at the age of three a wrinkle appears at the base, and every succeeding year another appears; so by adding two to the number of rings on the horns the age may be ascertained. "Poverty rings" are sometimes to be seen on the horns, which are brought about by starvation when rearing the animal, but are smaller than those brought about by age.

Mr. James Irving, M.R.C.V.S.L., gives the following as the test of age in dairy stock:—

Table of Early Average Improved Breeds.			Table of Late Average Improved Breeds.			Table of Late Average Unimproved Breeds.		
Years.	Months	Number of teeth.	Years.	Months	Number of teeth.	Years.	Months	Number of teeth.
1	9	2 permanent incissors.	2	3	2 permanent incissors	2	3	2 permanent incissors
2	3	4	2	9	4	3	0	4
2	9	6	3	3	6	4	0	6
3	3	8	3	9	8	5	0	8

—*Queensland Agricultural Journal.*

OCCASIONAL NOTES.

Dr. Somerville writing to us with reference to a subject that was lately discussed locally says: "I should not think it impossible that strong smelling manures might give a flavour to garden and farm produce, *but only if used irrationally.*"

As the result of actual trial it was found, on using the lactometer for testing the products of the cream separator worked at the School of Agriculture, that while the specific gravity of the skim milk was 1·035, that of the cream was below the 1·000. This gives an indication of the utter unreliability of the instrument.

Messrs. R. de Silva, Lucas Mendis, and M. A. Fernando, who lately completed their course at the Forestry School, have been asked to be in readiness to take up appointments in the Forest Department. The new batch of Forestry students whose term commenced on May 1st, are all drafted from the Forest Department.

We understand that a number of Ceylonese young men will probably leave for New Guinea in June to work for a Syndicate formed with the object of developing the agricultural resources of that Colony, and that one of the old boys of the Colombo School of Agriculture will most likely go out with the party to open out land for coconut cultivation.

We have to thank the Hull Oil Manufacturing Company, Limited, for a sample of their Homco Castor Meal, and their offer to send a consignment of the fertilizer for experimental purposes.

The Andropogon family of grasses which is fairly well represented in Ceylon includes a number of species containing essential oils with characteristic odours. Of these, the best known are *A. nardus*, a cultivated variety, of which is the citronella grass grown in the Southern Province: *A. citratus*, the familiar lemon grass, also cultivated, though not so largely as citronella, in the South: *A. schoenanthus* var. *versicolor*, known variously as anise-scented, palmarosa, oil of ginger, and geranium grass. This grass is found in the north of the Island and is common on the Island of Delft. A good deal of oil (rusa oil) is extracted from it in India: *A muricatus* is the cuscus grass, the scented roots of which are used for making fans and punkahs, and from which oil is to some extent extracted. Another well-known scented Andropogon of India is a *A. luniger*, the Herba Schoemanthi and *Juncus odoratus* of the old pharmacists, commonly met with in N.W. India, where the oil is extracted.

The British and Colonial Druggist of March 4, states that the botanical origin of lemon grass oil is a matter of some doubt, and that it is probable that various species of andropogon are used in its preparation. It may be that *commercial* lemon grass oil is adulterated with essential oil yielded by other andropogons, but the botanical origin of true lemon-grass oil is by no means a matter of doubt, and the grass, which is so common a flavouring agent in Eastern cookery, is too well known to be confused with any other species of the same family. We note that the demand for lemon-grass oil has been rising owing to the fact that *ionone* or artificial essence of violets is obtainable from citral, the odoriferous constituent of the grass. Ionone is also obtainable from essential oils containing geranium, while the rhizome of *Iris florentia* also produces a substance resembling the odour of violets.

Apropos of the odour of violets it may not be generally known that cattle overdosed with turpentine, secrete through the kidneys a volatile product which gives off a strong scent of violets. Finlay Dun in his *Veterinary Medicines* thus refers to this fact under the head of "General Actions and Toxic Effects" of turpentine: "Swallowed, it is rapidly absorbed and diffused, and may speedily be detected in the chyle, breath and sweat, which have a strong terebinthinate flavour, and in the urine, to which it imparts the odour of violets." We have ourselves had opportunity of noting this symptom of overdosing with turpentine in a herd of calves, and been much struck by the peculiar phenomenon.

We reproduce elsewhere a *resumé* (taken from the *Australian Tropiculturist*) of the Countess of Warwick's scheme for an opening for women in the domain of agriculture. The scheme is a bold one, but as our contemporary observes, by no means beyond the range of possibility, and we are inclined to think that the details could be so modified as to suit the conditions of different countries and communities. With us, it must always be a reproach that poultry keeping is a neglected industry, at least as a true commercial undertaking and not merely as a pastime. There is, of course, a good deal of technical knowledge that is necessary before a poultry farm can be started on proper lines, but that is no excuse why poultry keeping should be a neglected industry. Again, if there are difficulties in the way of butter making in the low country, cream and other milk products will command a ready sale; while pig rearing is always referred to as a remunerative undertaking, though "clean" pork can be got only with the greatest difficulty.

CITRONELLA OIL.

We have to thank Mr. F. H. M. Corbert, Executive officer and Home agent for Ceylon at the Imperial Institute, London, for copies of the *Imperial Institute Gazette* and the *Pharmaceutical Journal* containing reports on the examination of Citronella oil. It had been noticed by the trade that native distilled oils have a much inferior aroma to those distilled by two English firms, viz., Messrs. Fisher of Singapore, and Messrs. Winter & Sons of Baddegama in the Southern Province, Ceylon, and that these two classes of oils also show very marked difference in physical character. The impression in England is that there is no difference in the variety of grass from which the oil is obtained. The idea of sophistication is put aside, as the nature of the adulterant, if any, employed has never been determined. Messrs. J. C. Umney and Swinton, after making an examination of oils reported their views to the British Pharmaceutical Association, stating that the high optical activity of the native-distilled oils is undoubtedly due to the presence of a terpene which does not exist, or has been removed from, the oils distilled by English firms. The latter class of oils was found to consist principally of camphene. The experimenters conclude that the native-distilled oil is in no way sophisticated but is a genuine natural oil. The high specific gravity and rotatory power are due to the presence of constitutents which also affect the solubility in alcohol, and, by acting as dilutents, impair the odour value.

We submitted the articles in the *Imperial Institute Gazette* and the *Pharmaceutical Journal* containing the reports referred to above, to an expert in the Citronella trade, who has been good enough to give us his opinion on the discussion, which we reproduce below. It will be seen that the differences in the qualities of the oil are really due to differences in the variety of the grass used, of which the English experimenters do not appear to have any knowledge. For this reason the opinion of our correspondent is of special value as settling a point which has apparently been giving rise to much misunderstanding:—

"There are two methods of distillation:

1. *Using Steam.*—Here the grass is placed in a cylindrical vessel which is closed, and steam, generated in a separate boiler, is let from the bottom of the vessel containing the grass. The steam passes upwards through the grass and in its passage extracts the oil.

2. *Using Fire-heat.*—In this process water and grass are put into one vessel and distillation

is carried on by heat applied directly to the bottom of this vessel.

It is not correct to say that the difference in the quality of oil is due to different modes of distillation, as I know of no still in which fire-heat is directly applied as described in the second process, and am certain that only a very small proportion of the oil sold commercially is distilled in that manner, steam distilling being easier and cheaper.

Adulteration used to be common, but the spirit test introduced about five years ago put a stop to this, though I believe that even with this test you cannot detect adulteration under five per cent.

The real difference is the quality of the oil traceable to the different varieties of the grasses employed. The original Citronella grass (which I still use for my oil) is a surface feeder, soon grows out of the ground and gets exhausted; but about twelve years ago a variety was found in the Matara district, which is much hardier, has deeper roots, and produces a larger quantity of oil. Of this latter variety nearly all native oil is made."

THE NUTMEG FAMILY AS A SOURCE OF KINO.

The order Myristcaceae is represented in Ceylon by ***Myristica laurifolia*** (Malaboda), ***M. zeylanica, M. horfieldia*** (Ruk), and ***M. Irya*** (Irya).

The malaboda is commonly called the wild nutmeg and closely resembles the true nutmeg: Its wood is sometimes used for making tea-boxes, but it is too light and soft for other purposes.

The male flowers of the Ruk are known to be very fragrant (resembling sandalwood oil), and Trimen mentions that scent is made from them, while the wood is used in boat building in the south of the Island.

Irya produces wood like that of Ruk, moderately heavy, even-grained and yellowish in colour.

M. fragrans, the true nutmeg tree, is now commonly met with in many places.

Other species of Myristica found in India are *M: longifolia* and *M. malabarica*. The last-mentioned is the subject of a note in the *Kew Bulletin* for Feb.-March, and is there referred to as a source of Kino.

The product of the tree was examined by Prof. Edward Schaer of Strasburg, who has written a paper on the subject to the *Pharmaceutical Journal*. The following is a summary of the results of the Professor's investigations:—

1. The dried juices of the bark of several Asiatic species of *Myristica*, for instance, of *M. malabarica* Lam., and *M. fragrans*, Houtt., as regards their appearance and physical qualities, show but little difference from the officinal Malabar Kino.

II. These substances, which may be termed Myristica Kinos, agree in the chemical reactions due to their constituents, in all important points, with the Kino of *Pterocarpus Marsupium*. It can therefore be stated that drugs of a very similar character, and partly of close resemblance to official kino, are to be found in the families of Leguminosæ (*Butea, Pterocarpus, Millettia*), Saxifragaceæ (*Ceratopetalum*), Myrtaceæ (*Eucalyptus, Angophora*), and Myristicaceæ.

III. The *Myristica* Kinos differ, as far as can be observed from the *Pterocarpus* Kino, and probably also from *Butea* and *Eucalyptus* Kino by containing, in the crude state of the inspissated fresh juice, smaller or larger amounts of a distinctly crystalline calcium salt, viz., calcium tartrate, suspended in, and depositing from, the liquid juice. By this characteristic admixture it can be easily distinguished from the official Kino, and probably also from other Kinos of commerce.

Whether this new substance might ever be obtained in combination with the production of nutmegs and mace, so as to play the part of a commercial drug, will depend upon a still better knowledge of its qualities, its formation in the living plant, its quantitive relations, and similar questions.

It would be interesting to know whether it would not be possible to get Kino from the succulent pericarp of the nutmeg and allied fruits (which is at present a waste product) by a process of boiling.

DAIRY NOTES

Too much care cannot be bestowed on cows during their first milking season. If they are allowed to go dry too early, they are inclined to ease off the following season in like manner. It is the experience of the most observant dairy farmers, that if a cow is forced to go dry, some part of the udder suffers, and in some cases the permanent impairment of one or more of the teats. Evidently, the best plan is to let a cow milk the whole time if she will, right up to calving, as drying off requires more care than the ordinary milker is inclined to give. Cows are sensitive animals, and he's a wise man who treats them as such.

Mr. D. Hyam, Terrara, is one of the champion Illawarra dairy stock breeders. His three-quarter bred Jersey, 6 years old, Blossom, at 3 years and four months, won the butter test at Wollongong, testing 9·3, producing 2 lbs. commercial butter from 19 lbs. milk; in 1897, on the same show ground, she tested 8·2, gave 24 lbs. milk which produced 2 lbs. 3 oz. butter. Same year at Albion Park she took the butter prize for cow yielding largest butter-fat. At Berry, same year, she gave 29 lbs. milk in 12 hours producing 2 lbs. butter, equal to 27 lbs. butter per week—which is one of the world's records. At last Dapto Show she gave 30 lbs. of milk, testing 6·7, making 2 lbs. 5 oz. butter. His half-bred Jersey with Ayrshire, 6 year old "Jenny" won first for best dairy cow at Nowra in 1896; in 1897, 1st and champion at Dapto, 2nd at Albion Park, Kiama, and Wollongong; 1st at Nowra, and 1st and champion at Berry. This year 1st at Dapto and 1st and champion at Wollongong. Mr. Hyam has good pastures and hand feeds, when they are on tests, twice a day, giving them a three-gallon bucket of chaff and coconut oil cake.

Dairy farmers cannot pay too much heed in the selection of the bull for their herds. Every farmer can't afford an out-and-out first-class bull for his cows, so he has to put up with one in the district, whether 'tis good or bad; and he often lets a stray animal, that he knows very little about

mate with a good cow. There is money in a really good bull in dairy districts for the breeder, if he watched his opportunities as owners of stallions do.

Handle calves and get them familiar with you from birth; that is, those that are meant for the herd. Then, when they drop their first calf, and are ready for the milk pail, they come up to you without fear, and "let it go" like winking. If this isn't done, there is a lot of good time and good milk wasted.

A good dairy stock breeder will go less by breeds or types than actual individual milk results, as shown by careful separate tests. Dairy farmers have predilections for certain strains, and for large or small cows, but this bias shouldn't run away with their judgment.

Says the *Farm and Dairy* (Sydney) :—Some condensed milk doesn't contain enough butter-fat in a dozen tins to oil the wing of a mosquito! We all know that by the modern system of milk separation fully 97 per cent of the butter-fat is extracted from the milk. Well now, some condensed milk makers eliminate the butter-fat, turn it into butter, and whisk up the solid refuse with sugar into "condensed milk." This stuff comes on to the market as a whole-milk product, whereas, it is a separated article, and, as a food, a mere worthless, indigestible compound. Only so recently as six weeks ago, three London grocers were proceeded against for selling tins of condensed milk not of the quality, nature and substance demanded. That is to say, the labels on the tins were delusive. The fact wasn't disclosed that the tins didn't contain whole milk, and the purchasing public were defrauded in consequence. Condensed milk is made at Coolangatta and near Singleton, and, doubtless, they will be able to stand the test; also, possibly, some imported brands. On the other hand, some brands are not milk in the food sense at all, and shouldn't be allowed to be sold. Anyhow, before any prosecutions are instituted against our own dairymen for having milk a few points below par, let the authorities see that no imported "milk' goes forth for general consumption that is below the standard for butter-fat.

WOMEN AGRICULTURISTS.

From time immemorial women have been connected with agriculture, but only as helpers to man. A new era has dawned for woman in this respect in all parts of the world; she takes an interest more or less direct in nearly all branches of husbandry. But now that interest is to be carried a step further. Instead of being, as at first, the servant of man, or, as afterwards, as man's assistant or helpmeet, she will now assume the role of man's competitor. In an article from the pen of the Countess of Warwick, contributed to the Christmas number of the *Land Magazine*, a perfect scheme is laid down for women (unmarrying women, as the Countess puts it) desirous of escaping from city rack rents, and enjoyi country pursuits. The immediate object of t scheme is threefold—

1. To open a new field of work for women.
2. To stay the depopulation of our rural districts.
3. To keep some of the money in this country which is annually spent in *foreign* dairy, poultry, and horticultural produce.

The Countess argues down any objections that might be brought up against the objects, and especially the first and third clauses. With the second we are not quite so sure. It is contended that the young men of our day have a tendency to leave the country and flock to the towns. To remedy this it is now attempted in this scheme to make amends for this by inducing the young women to flock to the country. We cannot perceive how the depopulation of the rural districts is to be prevented if such a state of things continues. Would it not be better to include in the scheme the idea that the presence of the emancipated, or shall we merely say sensible, women in the country would so attract the giddy young men that they would stay at home, and take a new lease of life as it were? An organisation is proposed to be formed under two distinct heads:—

1. To open an agricultural training college for women.
2. To establish women's agricultural settlements in different parts of the country.

It is intended to start the college at an early date, and it will be under the control of a lady principal, a lady by birth and education, and fully qualified to give instructions on two or three of the branches of the work to be carried out. The other instructions will be carried out by a thoroughly efficient staff of lecturers and practical instructors.

The practical work will include:—Dairy work in all its branches, pig keeping, poultry rearing, market gardening, fruit growing, bee keeping, jam making, bottling fruit, home made wines, &c.

The other details of management are all plainly set forth. These include the age (minimum 16), physical exercise and games, library, debating club, examinations and certificates, laying out of the ground, &c., &c.

Under the second heading, "Women's Agricultural Settlements," the plans are very complete in details. Each settlement shall consist of from 6 to 10 or 20 holdings or cottages, occupying from 1 to 4 acres, each holding to be occupied by two women settlers. A lady warden will have the control of each settlement as far as business (only) is concerned. Each settlement will have a factory, a creamery, central office and club room, but the entire management of the whole system will be directed from a central office in London. Co-operation will be the guiding spirit of the scheme.

The scheme is elaborate in detail, and quite within the possibility of actual fact, although the idea comes as something like a surprise to most of us. With Australians the idea will not "take on," but in a densely populated country like Great Britain we see no reason to doubt its taking a practical shape. And if young women take the lead in inaugurating such a system, who shall say that our men will not follow? We firmly believe that a tendency to go on the land, as a means of livelihood, will become stronger in the immediate future.

THE USES OF WOOD.

By FILIBERT ROTH,
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GENERAL REMARKS.

Wood, like soil, air and water, has until recent times been one of those materials which man could obtain without effort beyond the mere taking. Hence, although it has become one of the most important, most generally used, and to our civilization most indispensable products of nature, our attitude toward its production has been one of indifference. Wood has been used so generally that a large amount of empirical knowledge regarding its properties has accumulated. This knowledge has sufficed for immediate purposes, and the need of a more intimate knowledge gained by investigation and experiment in regard to the properties and characteristics of wood has never become very apparent. Abundance and cheapness, together with ignorance of its true merits, have led to a most extravagant and often erroneous use of this product. We have witnessed with indifference, also, the useless destruction of enormous quantities of timber in the vague belief, characteristic of the times, that when the supply is gone some substitute will be found. That this belief is poorly founded is quite apparent, for while such substitution as, for instance, that of iron in ship, bridge, and track construction has taken place, and undoubtedly will continue and even increase in many directions it has not prevented, even in countries like England, where wood is dear, an increased consumption per capita of population, while Germany, with all its well-managed forests, imports great quantities of large-sized timber. Moreover, as we learn to know the properties of this material, we find that it is capable of many uses for which it was supposed the metals alone were fit; wood is today displacing the best qualities of steel even in such delicately balanced structures as the bicycle. That this return to wood in many of our manufactures will continue, in spite of the cheapness of iron and steel, there is not the slightest reason for doubt, and the importance of wood as a material of construction, to say nothing of its use as pulp, cellulose, and its derivatives, and its growing value as a fuel, will steadily increase and not decrease, as is so commonly assumed and taught.

Before entering into the discussion of the uses of different kinds of wood, and the reasons for their selection, it may be well to review the principal useful qualities of this material, and to some extent compare it with its most natural substitutes.

WOOD AS COMPARED WITH IRON.

1. Wood is a natural product; iron the product of a costly, complicated manufacture. Wood may be grown wherever man wishes to use it; the manufacture of iron is practically confined to particular localities. The mines of both iron and coal are exhaustible; the forest, under proper management, produces for ever.

2. Wood is cheap; metals are dear. Even in the form of lumber, and with the cost of long-distance transportation added, wood costs the consumer in this country rarely more than 25 cents per cubic foot, while iron in bars and sheets is worth at wholesale from $5 to $10 per cubic foot.

3. Wood is soft; simple tools and small effort suffice to shape it. Iron is hard, any change of form, whether by casting, rolling, sawing, cutting, planing, turning, filing, boring or grinding, requires much labor, or else complicated and costly processes and equipments. In the ease and rapidity with which wood can be shaped, reshaped, and combined in structures it excels all other materials.

4. Wood cleaves or splits; metals do not. While this property has its disadvantages, it is one that in some directions determines the usefulness of wood. It permits ready preparation for fencing and firewood, which latter use exceeds in bulk ten times the amount of iron and steel used in this country.

5. Wood is stronger than is usually supposed. In tensile strength (pull lengthwise or with the grain of the wood) a bar of hickory exceeds a similar bar of wrought iron of the same length and weight, and it even surpasses steel under the same conditions.

Similarly, a select block of hickory or of long-leaf pine sustains a greater weight in compression endwise (parallel to the grain of the wood) than a block of wrought iron of the same height and weight, and nearly approaches cast iron in this respect.

6. Wood is very elastic and resists bending to a marked degree; and though the modulus of elasticity of iron as ordinarily stated appears 10 to 15 times as great as that of good ash or long-leaf pine, yet a square 10-foot bar of the latter wood requires 6 to 8 times as great a load to bend it by one inch as a similar bar of iron of the same length and weight. Moreover, wood endures a far greater distortion than the metals without receiving a "set" or permanent injury. It does not rust nor crystallize, but retains its quality, and being light, and therefore used in solid pieces, may be selected with perfect assurance of avoiding "flaws" which are so dangerous in all metals when used in small pieces combined to make a larger structure.

7. Wood is light; iron and steel are heavy. The average weight of all wood used in this country does not exceed 31 pounds per cubic foot; that of iron and steel is from 430 to 450 pounds per cubic foot. This quality effects ease of handling and transportation; it permits the floating of most woods when green and of all when dry, and with its superior strength and stiffness results in a saving of more than 75 per cent in the weight of structures, frames, floors furniture, etc.

(*To be continued.*)

PERFUME MAKING.

In answer to a correspondent enquiring as to the method of extracting scent from flowers, we give the following description of the two processes generally adopted:—

(1.) THE COLD PROCESS.

Procure trays with glass bottoms, spread clarified fat a quarter of an inch thick upon each side of the glass; gather the flowers early in the

morning, and spread thin upon the fat. Close the glass-sided box. Every second day replace the old flowers by fresh ones, and renew them twelve or fifteen times. Then scrape the fat from the trays, break it up into very small pieces and digest it in spirits of wine 60 over-proof, say two lbs. of fat to $2\frac{1}{2}$ lbs. of spirits. Stir every day for a month, keeping it covered. Then bottle and label it "Extract No. 1." Now add fresh alcohol to the fat (1 lb. is sufficient), and stir daily for a month. Pour it off then, and label the bottle "Extract No. 2." Do the same thing a third time, and so obtain "Extract No. 3." Now you had three bottles, all containing different strengths of extract, and all of value according to their strength. The fat is now melted in a *Bain Marie*, is poured off, and kept for next year.

(2.) THE HOT PROCESS.

Take, say 2 lbs. of flowers, being careful that there are no stems; put them in a round tin. Melt 4 lbs. of clarified fat with only just sufficient heat to melt it. Pour it over the flowers, and leave them covered till next day. Now get a larger dish with hot water to melt the fat, on the same principle as the glue-pot. This is called by the French a *Bain Marie*. Now take another round tin containing 2 lbs. weight of the same kind of flowers. Place two strips of wood on top of this to hold a sieve. Then pour in the melted fat from the first pan, thus straining the leaves and allowing the fat to fall on the fresh lot of leaves in the second tin underneath. Cover up and again leave till next day. Clean the first tin for the morrow, so as to repeat the operation each day for fourteen days, when the fat will be fully charged and is ready to be digested in spirits of wine as described above. Only sufficient heat is required to cause the fat to melt and flow, as the extracts are very volatile at a high temperature, and a great loss may be occasioned by over-heating the fat.

If more rose leaves are gathered than can be used on the same day, sprinkle them with salt, when they will hold their scent for a few days. This is called salting the leaves. For oils of the same plants coarse cotton cloths are imbued with the finest olive oil and laid upon a frame containing wire gauze in lieu of glass. On these the flowers are laid and suffered to remain until fresh flowers are procured. This operation is repeated several times, after which the cloths are subjected to great pressure to remove the now perfumed oil.

How to make the Clarified Fat.—Take 7 lbs. each of beef, mutton, and pork fat; chop fine on a board, and wash in clean cold water, then put in a boiler with five gallons of fresh water; put on the fire; add two oz. of alum and a handfull of coarse salt and forty cloves; boil until all the fat is melted; then get another basin with five gallons of fresh water, and skim the fat through a wire strainer into the water; now boil the second time (adding the same quantity of salt and alum) for one hour, and then let cool. On each occasion of its cooling a dark-coloured sediment is found at the bottom. This must be carefully scraped away. When the fat is perfected white and pure throughout, it is remelted and put away for use.

How to make a Cheap Still.—Construct a metallic tank of about 100 gallons capacity, the interior fitted with a holed false bottom, about 9 inches from the base. Set in brickwork (although this is not absolutely necessary) with a fire retort under it. A funnel about a foot in diameter at its greatest extent, with a rim to enter and a flange to support it, is fitted like a saucepan lid over a corresponding hole in the head of the tank. A pipe 2 inches in diameter—a continuation of the funnel—continues like a spiral worm around the interior woodwork of a barrel filled with cold water, the end projecting near the base like a faucet. This completes the apparatus. A five gallon still can be constructed for about §25 (about £5).

How to Operate the Still.—The space below the false bottom of the still is occupied by water, in which a few pounds of salt or alum are dissolved to increase the boiling point. The tank is now filled with the desired flowers and the funnel-shaped lid is held in place by being screwed down and the joint packed with moist clay. A quick fire is lighted under the still, causing vapour, which percolating through the flowers lying over the false bottom releases the attar, and steam and oil go jointly up the funnel, and wind their way through the condensing corkscrew pipe. A stream of cold water running into the tub condenses the steam and oil, which flows into a glass jug placed at the lower end of the tube. The oil is seen floating on the top, and is skimmed off with a spatula or flat ivory paper knife, or can be sucked off with a pipette (glass pipe), a crystal tube having a bulb about three inches from one extremity. The distiller places one end in his mouth, and, lightly touching the filaments of essential oil with the other, draws them into the bulb.

If the same distilled water is employed several times over, it increases the output of oil. The temperature of the steam must not be too great, or the essential oil is likely to be injured. Time—about three hours. The false bottom containing the stewed leaves is hoisted out, and the mashed mass is useful as a fertiliser. This process applies only to the rose.

Pots of different scented flowers should not be grown too close as each will become tainted with the other and the virgin aroma of each will become confused. Plots of roses, or jasmine, or tube-roses should be separated by others growing vegetables or other scentles plants. The beds should run north and south so as to get the greatest benefit from the sunshine which is an important factor in the production of superior oil. As an adjunct to some regular form of cultivation, scent-making should always provide a nice sum of pocket-money. A few sheets of glass and some fat are practically the only necessaries. The work is light and pleasant. Saturated lard is worth from £1 5s. to £1 10s. per lb. in London or Paris, and the spirit or "extract" is worth 3s. 6d per oz. or £3 10s. per pint. For the above information we are indebted to the *Queensland Agricultural Journal.*

GENERAL ITEMS.

Mr. Kershaw, who has been visiting the Australian Colonies, with a view to opening up a trade in certain cotton thread fabrics, of which he is an extensive manufacturer in Manchester, has been giving his views regarding fibre plants other than cotton. Speaking of ramie Mr. Kershaw was emphatic as to the superiority of

this fibre over jute. While the fine silk-like fabrics of jute can be distinguished from pure silk, it is impossible to do so in the case of ramie. As to the price quoted for ramie—£30 per ton for clean fibre—that was absurd. £30 per ton meant about 3½d. per lb., whilst the fibre commanded at least 6d. per lb. in the open market, or £56 per ton. The improved machinery would even have the effect of increasing the price. Ramie was a fibre that lent itself to the most delicate fabrics, as well as to the coarser ones. For his knowledge of the trade, and from what he had learnt whilst in the Colonies on the subject of the adaptability of the soil and climate of N.S. Wales and Queensland to the cultivation of the plant, he came to the conclusion that it was eminently worthy of attention.

The following cure for mange is from the *Queensland Agricultural Journal* :—Boiled linseed oil, sulphur, and kerosene equal parts. First mix the oil and sulphur, then add the kerosene, and mix well. Applied with a hard stubby brush. A tea spoonfull of carbolic acid to a pint of lard, stirred in and well mixed is also a good remedy.

Papaws are largely grown for fruit in Ceylon where it is also now being considerably used as a vegetable. The demand for the fruit, especially for the shipping, is great. There are three distinct varieties in cultivation, two of which produce huge fruits weighing up to 9 lbs. each. Lately, another variety referred to as the Singapore papaw, which is not large but has a characteristic flavour of its own, and turns golden when ripe, has been introduced; it was first grown by Mr. J. W. Ebert, who is well known as a cultivator of flowers and fruits in Colombo. It does not appear necessary to keep "male trees" in gardens, and these are generally destroyed, but sometimes these unsatisfactory specimens are topped—the operation requiring as a rule to be repeated often —till they become transformed into good fruiting trees. Papaw trees may be dioecious, monoecious, and even hermaphrodite.

Papaw juice is now worth 5s. per lb. The *Chemist and Druggist* says that it is best prepared by pressing it out of the unripe fruit, clarifying by filtration through a twill bag and fermenting the precipitate by alcohol. It is then dried and some purified by treatment with water.

The simplest way, says the *Queensland Agricultural Journal,* to tell the age of a fowl, and one which is adopted by the London poultry dealer, is to feel the breastbone, of the live bird. If the bone feels tender and supple like gristle, the bird is young. If, on the other hand, the bone feels hard and ridgy, the bird is fully matured, and very much so.

Paris Green or London Purple solution is an effective remedy against white ants. When they occur in walls, on the floor of buildings, on tennis courts or such places the stronger the solution the better, but care must be exercised in using the poison in the neighbourhood of plants.

The question has just cropped up in Scotland of the rights of women to study, obtain diplomas, and practice as veterinary surgeons in Great Britain. It arose peculiarly. The Principal of the new Veterinary College, Edinburgh, raised an action in that city for damages against the Royal College of Veterinary Surgeons, London, in respect that the latter refused to admit to the college examinations a lady student who had attended the requisite classes and obtained the necessary certificates. The action was dismissed, on the ground that it should not have been raised in the Scottish courts, so that it remains undecided whether or not a lady is eligible to become a veterinary surgeon. Surely there "is something rotten in the State of Denmark," when old-time prejudice blocks the paths of intellectual and social freedom in that way! If a woman is eligible by mental qualifications and physical fitness to follow the profession of veterinary surgeon, surely she should "be let." The mere question of sex in the matter of admission to the college should have no more to do with the Council of the Royal College of Veterinary Surgeons than whether the applicant wears tweeds or moleskins. It is not a question of pants or bloomers, but whether the applicant is, by virtue of his or her special attainments, sufficiently qualified to practice as a veterinary surgeon. Upon that issue, and that alone, the decision should be given.

The apple has been recommended far and near as the food of life. Now it will probably be the turn of the baked banana, which is being extolled in America as the ideal food for the nervous, the anæmic, and the brain worker. Bananas, it will be remembered, occupied a high place in the diet of the late Sir Isaac Holden, and without going so far as to say they are a panacea for all ills, it is asserted that their great power to sustain mental effort is recognised in India, and that pale, thin, poor-blooded people rapidly improve on adopting this diet. Whatever the value of the banana as an artical of diet, it is worth noticing that in the West Indian islands the cooked plantain, which is first cousin to the banana, forms one of the staple articles of the food of all classes of the community—baked, roasted, fried, or, if green boiled.—*Australian Tropiculturist.*

From the *Meat Trades Journal* we learn that a case came on before the Warwick (England) County Bench against a farmer for "ill-treating twenty-one bullocks by dishorning them." The solicitor who prosecuted described dishorning as "a survival of a barbarous age," and the veterinary surgeon declared the operation to be a most painful one. It is news to be informed that dishorning was even practised before the present century, and we have sufficient acquaintance with the latest methods to know that the operation can be performed without pain, and even were there a slight pain, the work is done so quickly and faultlessly as to class it as painless. No doubt it would appear more humane to dishorn when the animals were young, but we must not ignore the fact that painless dishorning can be performed at any age.—*Ibid.*